JANUARY, 1958 • 20c

Better Farming Methods

For Vo-Ag Teachers, County Agents, Soil Conservationists, and Extension Specialists

CLEAR PONDS FOR BETTER FISHING ..... page 38

TEST PLOTS YOU'LL BE PROUD OF ..... page 24

LET COMMERCIALS HELP YOU TEACH ..... page 20

CALF HANDLING CAN BE EASY ..... page 16

FEATURING—

Ag Chemicals

WYETH ANIMAL HEALTH TOPICS

PINK-EYE STRIKES FAST

TRIBIOTIC OINTMENT BRINGS FAST RECOVERY!

Pink-eye, or infectious keratitis, has two unwelcome characteristics: sudden onset and rapid spread throughout a herd.

TRIBIOTIC® OINTMENT has an exclusive, triple-action formula for fast recovery from pink-eye. Its three antibiotics (100,000 units penicillin, 50 mg. dihydrostreptomycin sulfate, 5000 units bacitracin) mean effective therapy against a very wide range of causative organisms. Its special spreading base insures complete coverage of the eye surface thus promoting rapid healing.

Completely aside from its actions against pink-eye, TRIBIOTIC OINTMENT also enjoys wide-spread use in mastitis, where its unique ability to reach all areas of the infected quarter has proven of great advantage.

TRIBIOTIC is available in handy squeeze tubes with plastic nozzle, 3.75 Gm. per tube.

PROMPT RETURN TO FEED ESSENTIAL AFTER AIR SAC INFECTION

The most serious effect of air sac infection (or CRD) is one of *economy;* birds with air sac infection exhibit marked reduction in food intake. Weight gains, therefore, are slower and more expensive.

BICILLIN®-SM puts birds back on feed *fast.* And because it remains in birds four times longer than ordinary penicillin, it *keeps* them on feed, minimizing relapses and reinfections. BICILLIN-SM contains long-acting bicillin *and* dihydrostreptomycin—for effect against both the primary air sac infection and against secondary bacterial infections.

It has *no oil* to delay marketing or downgrade carcasses.

BICILLIN-SM comes in bottles of 500 cc. It's tailor-made against air sac infection!

DOUBLE-ACTION AGAINST WINTERTIME PNEUMONIA OUTBREAKS *WITH ONE SHOT!*

While there are many predisposing factors contributing to the incidence of pneumonia, certainly exposure to harsh winter weather is one of the most prevalent. The sudden temperature changes of winter—snow, cold rains and high winds—all combine to increase sharply the incidence of this disease.

Because the onset of pneumonia is sudden and because its treatment should be continued for at least four days, truly effective therapy must combine both high initial potency and prolonged preventative action.

INJECTION BICILLIN FORTIFIED meets these requirements exactly. The combination of procaine penicillin G for high, immediate blood levels and benzathine penicillin G for prolonged levels (*lasting up to five days*), provides both effects *in a single dose.*

To many farmers, harassed by wintertime health measures, this one-shot convenience of INJECTION BICILLIN® FORTIFIED is readily appreciated.

INJECTION BICILLIN FORTIFIED is also ideally suited for treatment of shipping fever, foot rot and navel ill. It is available in 10 and 50 cc. vials (300,000 units per cc.), in 1 cc. TUBEX® sterile needle units (600,000 units per cc.), and in 4 cc. disposable syringes (2,400,000 units each).

To Keep Animals Healthy *Economically*
RELY ON *WYETH* ANIMAL HEALTH PRODUCTS
Proved *Safest!*

DRIVE THE DYNAMIC NEW D-SERIES TRACTORS

Discover for yourself what this completely new concept in tractor design can mean on your farm—now and in the future

You have never known power like this before!

The *Big* D-17 has an all-new POWER-CRATER engine—or a new 6-cylinder diesel—both in the 50-hp class. You shift on-the-go in two ranges with the exclusive new Power Director . . . the "Big Stick." Eight speeds . . . and live PTO!

All this . . . plus more *working weight* with the automatic hydraulic TRACTION BOOSTER system and big implements. With the fully mounted, 4-bottom plow, or the 5-bottom plow with remote ram and transport wheel, you get earth-gripping traction equal to that of tractors weighing up to 7,500 pounds.

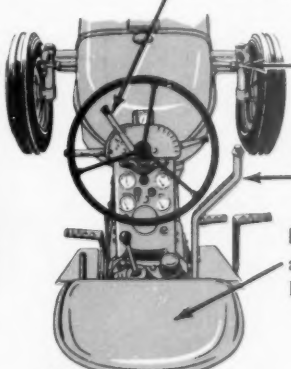
In the 35-hp class, the 3-plow D-14 Tractor has all of the new features and Low-Line, High-Crop design found in the larger D-17.

With any of the new, matched, big-capacity Allis-Chalmers implements, you can cover extra acres each day . . . and save time, fuel and dollars. Make today *your* "D" day. See your Allis-Chalmers dealer for a demonstration drive.

D-17 Tractor knifes down through hardpan with 11-shank chisel cultivator—one of a complete line of heavy-duty deep tillage tools. Similar equipment also available for the D-14 Tractor.

NEW FROM ALLIS-CHALMERS

NEW TRACTION BOOSTER system with simplified control.



NEW Roll-Shift front axle.

NEW Power Director—shift to high or low range . . . on-the-go.

NEW easy-ride seat, adjustable for operator weight and height. Reduces fatigue.

PLUS SNAP-COUPLER hitch and Power-Shift rear wheels. Power Steering if you want it.

TRACTION BOOSTER, SNAP-COUPLER and POWER-CRATER are Allis-Chalmers trademarks.

ALLIS-CHALMERS FARM EQUIPMENT DIVISION, MILWAUKEE 1, WISCONSIN

ALLIS-CHALMERS

Engineering in Action

JASPER TWEED

"Jasper refuses to give in to certain customs of modern living."

Coming Events

January 6-8—61st Annual Convention, American National Cattlemen's Association, Oklahoma City, Okla.

January 8-10 — Northeastern Weed Control Conference, Hotel New Yorker, New York City.

January 10-11—Hampshire Meat Hog Conference, El Dorado, Ark.

January 13-14—20th Annual Meeting of the National Cotton Council, Memphis, Tenn.

January 13-15—Second Meeting of the Weed Society of America, Hotel Peabody, Memphis, Tenn.

January 21-22—Tenth Annual Pesticide School, North Carolina State College, Raleigh.

January 25-February 1 — Longhorn Recreation Laboratory, Kerrville, Tex.

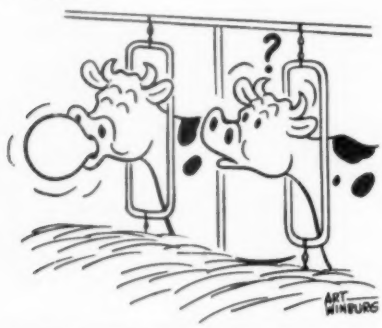
February 7-16—San Antonio Stock Show & Rodeo, San Antonio, Tex.

March 12—13th Distillers Feed Conference, Sheraton Gibson Hotel, Cincinnati, O.

March 20-21 — The University of Maryland Nutrition Conference, Shoreham Hotel, Washington, D. C.

June 22-25—51st Annual Meeting, American Society of Agricultural Engineers, Santa Barbara Campus, University of California, Santa Barbara.

July 26-29 — National Audio-Visual Association Convention, Hotel Morrison, Chicago.



Better Farming Methods

Professional Magazine for Leaders Who TRAIN and ADVISE Farmers.

January, 1958 Vol. 30, No. 1

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MEMBER NATIONAL AUDIO VISUAL ASSOCIATION NAVA

PUBLISHED MONTHLY ON THE 1ST OF THE MONTH BY WATT PUBLISHING COMPANY, MOUNT MORRIS, ILLINOIS

BPA NBP

In the mountains around Nicktown, Pa., this machine was used to plow in a cable that brought telephone service to 232 farm families.

1957...another bumper year for telephones

During 1957, 320,000 telephones were added in Bell System rural areas, bringing the total to a million in the last three years. That's a lot of new telephones, but their real value cannot be figured in numbers.

To the farm businessman, carrying the responsibility of a complex modern farm, the telephone is a direct line to the folks he depends on for supplies, financing and information.

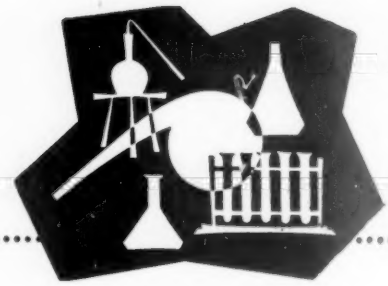
Every year the telephone is adding profits to farm living—profits in dollars and human values. Thousands of Bell people—managers, linemen, operators, servicemen—work around the clock to bring a bigger life to the farm.

Working together to bring people together
BELL TELEPHONE SYSTEM

Grady Hardin, Supervisor of Rural Development at Hattiesburg, Miss., visits dairyman Burris Vance, one of 25,000 farmers that Grady has helped to get telephones.

Cowman Joe Tucker of Bowring, Okla., tells district telephone manager, Dick Hildebrand, how his telephone helps him contact buyers in Iowa, New York and Texas, as well as folks in town, without losing any working time.

Keeping up in AGRICULTURE



Scientific Groups to Explore Unknown

Everyone, it seems, is getting in on the move toward more scientific advancement that has been spurred on by space sattellites. The USDA has joined the group by announcing that it is sponsoring special pioneering research groups to explore the scientific unknown beyond the present limits of knowledge. These research groups, which are predicted to encourage a freer play of genius in agricultural research, will delve into the mysteries not concerned with the solution of immediate agricultural problems.

Researchers are Studying Diets for Insects

Plant breeders may soon have new information to use in developing insect resistant crop varieties. This information is expected to come from a study by the Agricultural Research Service into the nutritional needs of destructive pests. These studies could also lead to methods of feeding chemicals into plants to repel insects. Already these researchers have learned exactly what the nutritional requirements of some insects are.

Fat-Fed Chickens Have Good Flavor

Taste tests have proven that fat-fed chickens tickle the palate about the same as their cousins on a diet of lean. The truth is, one group of tasters found the fat-fed chickens more tasty than the birds fed on a diet without fat. In this test, one group of birds got a diet with 26 percent added fat while the control group got the same ration without added fat. Then it seems that poultrymen who add fat to their poultry rations for faster gains need not worry about off-flavor in their product.

Good Use for Sawdust

Spoiled silage is a problem that plagues farmers all across the country. However, much of this loss can be eliminated with a sawdust cover, say South Carolina Experiment Station researchers. Their tests proved that the amount of silage saved by putting on sawdust silo covers paid several-fold for the material and labor required. This experiment, with both upright and trench silos, included felt paper between the silage and sawdust cover.

Research Brings New Milk Market

A break-through by dairy marketing researchers may prove the importance such research can have on the farm surplus problem. These USDA workers have come up with a sugar-preserved dairy cream that keeps well, unrefrigerated, on store shelves. The manufacturing process is simple, and it produces a sweetened cream product with 40 percent butterfat, additional non-fat milk solids, and sugar in sufficient concentration to preserve it at room temperature for at least six months. This will open new markets for milk products.

Chickens Bleed Better After Gassing

The Agricultural Marketing Service has recently completed tests which prove that carbon dioxide before slaughter causes faster and more complete bleeding of chickens. The AMS researchers found that gassed birds lost much more blood during the first 30-second period than those slaughtered without gassing.

Pail-Kicking Cows Under Control

Here's a development that could have prevented the damaging kick by Mrs. O'Leary's cow that started the great Chicago fire. Word from an American chemical company indicates their tranquilizer may bring an end to belligerent cows kicking over milk pails. Called Trilafon, this material is being used to calm down first-calf heifers being milked for the first time.

Grange Calls for Collective Bargaining

The National Grange favors collective bargaining by farmers to obtain reasonable prices and a fair share of the national income. Grange spokesmen said farmers, as buyers, are at the mercy of business and labor. And as sellers, they are at the mercy of processors, handlers, and consumers.

Another Reason for Cover Crops

Winter cover crops may be more of a blessing than we have previously suspected. Recent findings at the Beltsville Research Center show a new role of those soil-protecting crops. Not only do winter cover crops reclaim lost plant nutrients, provide organic matter, and prevent erosion, but they also play an important part in maintaining a granular soil structure. They help prevent damage to soil structure by repeated freezings and thawings and help maintain large populations of earth-boring organisms.

Good News for Sheep Producers

According to the Wool Bureau, permanent pleats for women's wool skirts and permanent creases for men's wool trousers have already been made. They predict that the details on factory application of these processes will soon be generally available. What's more, they say the wool suit you wear in the future may be completely washable. Continuing with good news to sheep producers, they say that this wool will be spot resistant, moth resistant, and wrinkle resistant. These improved wool fabrics will help meet the competition from synthetic materials.—End

News from Merck:

TO REDUCE "OFF-FEED" LOSSES

FLOXAID*

Penicillin-Streptomycin Vitamin Mixture

for Drinking Water Medication

with the **PLUS** *of*

PYRIDOXINE

One tablespoon goes a long way to protect flock health and increase your poultry profits.

KEEPS YOUR BIRDS ON FEED... KEEPS YOUR PROFITS UP!

Off feed means trouble. Just a few days off feed in your flocks, and your profit picture begins to dim. Even worse, a drop in feed consumption may forecast a costly outbreak of disease. When your flocks go off feed because of stress—or any other reason—FLOXAID in the drinking water goes to work *almost immediately* to offset these hazards.

FLOXAID protects with high levels of 7 vitamins and 2 antibiotics, both penicillin and streptomycin, not just one.

FLOXAID stimulates appetites—helps get flocks back on feed with negligible setbacks in weight gains or production (even during outbreaks of C.R.D., Bluecomb, Nonspecific Infectious Enteritis and Infectious Sinusitis) *and*... FLOXAID *has the plus of Pyridoxine.*

FLOXAID is a product of Merck and, as you would expect, it has the Merck Margin of Surety. For it is the only such product containing pyridoxine (Vitamin B_6)—a recognized "key" vitamin during times of stress.

Stressors such as debeaking, hormonizing, vaccinating, moving or extremes in the weather cannot be avoided, but now they can be checkmated.

So, whenever stress is anticipated, add FLOXAID to drinking water supplies for 3 days before and for 7-10 days following the stress conditions. This simple, inexpensive step will protect flock health—*keep them on feed*—and will help increase your poultry profits at a cost you will find is negligible.

Do This to Reduce Brooding Death Losses the First 14 Days

The first two weeks are when death losses are highest. And no wonder. Moving, uneven brooder house temperatures, and reactions to vaccination, these and other stress conditions tend to increase early mortality. And, remember, when chicks or poults are off feed, they are not getting the vitamin-antibiotic protection that's in today's good feeds.

So give FLOXAID in the drinking water for the first two weeks of brooding and help get your chicks off to a fast, healthy start.

FLOXAID, in convenient ½-lb. and 5-lb. sizes, is available wherever poultry health products are sold. Completely dispersible—does not clog automatic waterers.

*Trademark

Merck & Co., Inc.,
Chemical Division,
Rahway, N. J.

MERCK

POULTRY HEALTH PRODUCTS

with THE MERCK MARGIN OF SURETY

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WASHINGTON NEWS

Farm Legislation in '58

Most Congressmen now returning to Washington for the start of the new session, Jan. 7, think it will be a slow year for farm legislation. But is that bad?

Some think not. The ranking GOP member of the Senate Ag committee, George Aiken, says, "We don't give the farmer a chance to find out what is in a program and to adapt himself to it before we start changing the signals."

It should be remembered that Mr. Aiken is from Vermont where it is considered important to have "cheap-feed." Of this there is now a-plenty and Northeastern folks naturally are inclined to keep it that way.

Others think that "drastic" action is required clear across the farm front. Midwestern Republicans, for instance, don't fancy the prospect that hog prices may fall down around their ears next fall at the very time they are exhorting farmers to keep them in office.

What's Ahead in '58?

What can you expect in the New Year? Here is the consensus of views we get on that question from lawmakers, officials, and farm leaders:

PRICING. USDA will persist in driving for lower price supports under "basics", but Congress won't listen. The department will probably buy pork as hog prices decline and election jitters mount. There

By Jay Richter
Agricultural Services
Washington, D.C.

also will be heavy pressure for direct government purchase of live hogs. Mr. Benson would resist this, but a new Secretary might well agree to buy.

FARM BUDGET. It will be cut little, if any, for the new fiscal year starting next July 1. The most important reductions, even if approved by an election-conscious Congress, could not be effected until after 1958. Spending on exports will go on at a high level. To continue selling our surpluses abroad for foreign currencies, the Administration probably will ask and get another $1 and a half billion. That would be a half-billion more than is being spent on the program in the current fiscal year.

COMMODITY PROGRAMS. There will be considerable pressure from the Grange and the National Conference of Commodity Organizations for (1) a "self-help" dairy program, (2) a domestic parity or "two-price" program for wheat, and (3) direct government payments to support cotton as is now being done with wool. The Administration opposes all three of these proposals, but each one has at least an outside chance for passage.

New Year's Resolution

A favorite but fruitless pastime of Washington writers, if you will overlook a personal note, is the prediction of the political demise of cabinet officers and other high officials. That particular form of punditry—to which this correspondent confesses guilt — is fruitless if not downright foolish. We therefore make a firm resolution; namely to cease and desist from such business in the New Year.

Incidentally, it now appears that Mr. Benson will resign soon unless it is decided he will stay.

Keep Cart Behind Horse

In our concern to train scientists and engineers, Land Grant college leaders are warning, let's not put the cart before the horse. The college leaders believe the first job is to build up faculty budgets and facilities.

"A big federal scholarship program won't do much good until we have the instruction and equipment to do the job," BFM is told by Russell I. Thackrey, executive director of the Land Grant association. "Our colleges, especially in the Northeast, are turning away thousands of willing and able students for lack of facilities and capable teaching."

The sputniks, meantime, have brought down a rain of urgent recommendations. We must "make clear to young people and parents," says a special President's commission, "the challenges and opportunities in scientific and engineering careers."

A federal program of direct aid to states to increase salaries of high school science and math teachers is proposed by the U.S. Office of Education. Approval of

this idea by Congress, critics charge, could really catapult bureaucracy into the classroom.

Of course, federal assistance is already a fact of life in vocational training, including agriculture. More of the same is probably on the way.

Chances for the area vocational school bill are much improved by the sputnik scare, educators agree. The idea is to develop federal-state financed vocational training programs "of less than college level" in agriculture and other subjects, says M. D. Mobley, executive secretary of the American Vocational Association.

The AVA proposed and is the principal sponsor of the legislation.

More of the Same

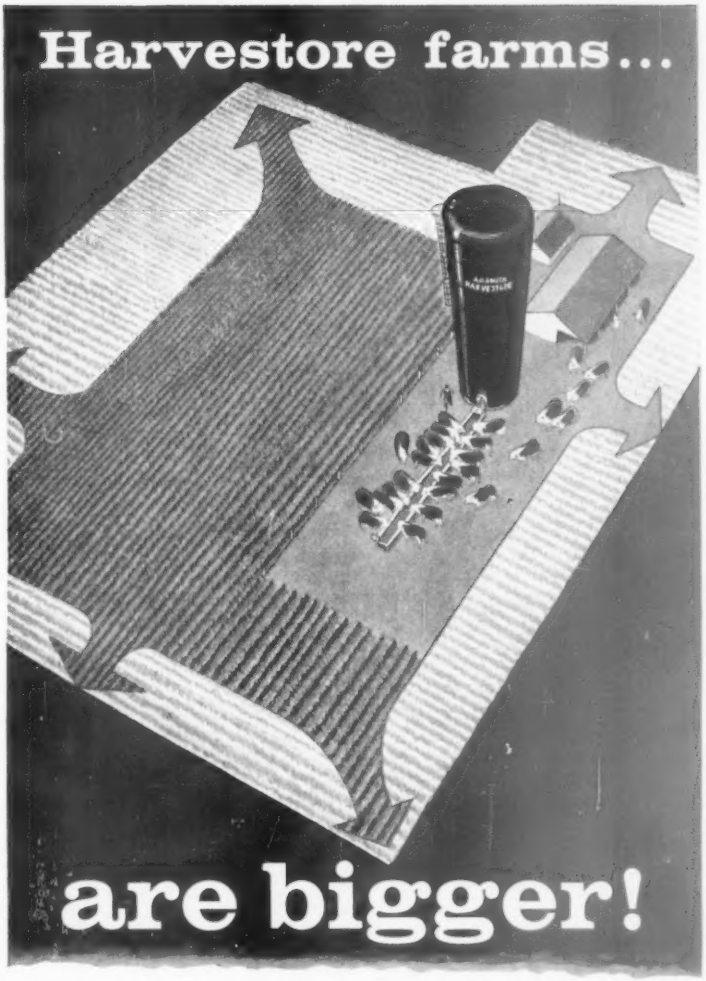
Economic outlook for farmers in 1958 is for more of the same, according to most of Washington's official forecasters. They believe that gross income may be some higher than in '57, but that agriculture's total net will be held down by higher costs. Net income of individual farmers, however, may improve a bit. One reason is that the decline in farms and farmers is expected to continue; another, that farmers are expected to earn more from off-farm work.

There Are Many Ways

Individual and local initiative are being stressed by federal officials as the indispensable ingredient in the recipe for success of the Rural Development Program. RDP boss, Harry J. Reed, recently provided a colorful example. He told about a farmer who stocked some of his fields with pheasants, then charged a fee to hunters.

(Anybody who didn't get a bird, by the way, was given one from the farmer's home freezer.)

The Washington office of the National Cotton Council has moved to new quarters in Room 502 of the Ring Building at 1200 18th St. N.W.



Not in actual acres. But in livestock and profit capacity, HARVESTORE *farms ARE bigger.*

- **Bigger in livestock capacity**
- **Bigger in feed production**
- **Bigger in profit potential**

Because: HARVESTORE *Vertical Farming makes possible an entirely new economy on the farm.*

Built around sealed, *oxygen-free* storage, the HARVESTORE eliminates most losses of haymaking, pasturing or green chop feeding ... multiplies the feeding value of oats ... makes possible the storing and feeding of high-moisture corn for lower-cost gains.

But HARVESTORE does more than provide better feed. It is a better way of farming ... eliminating conventional hay handling methods and awkward mow storage. The exclusive bottom unloader makes possible convenient mechanical feeding. But above all, the HARVESTORE means greater net profits.

For the complete facts on how the HARVESTORE increases livestock carrying capacity of a farm ... boosts income potential ... mail the coupon today.

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Please send me the free HARVESTORE Farm Profit Plan Booklet and Haylage information.

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Town ..... RFD .....

County ..... State .....

Spotlighting COMMUNICATION METHODS

to help ag leaders get farm people to accept new ideas

By Gerald McKay
Audio-Visual Specialist
University of Minnesota

Office Call Communications

You can get your points across in an office interview more effectively if you'll remember these things:

- Make the visitor feel that he is welcome (Your secretary can help with this).
- Let him know that his problem is important even though to you it may be trivial.
- Give him time to explain his problem completely.
- Suggest other sources of help which are available to him.
- Let him feel that you have plenty of time to help him.
- Show photos or slides to illustrate your points.
- Give him some material to take home for further reference and study.
- Set a time when you can visit his farm (if you think a visit is feasible).
- Try to give him the feeling that he has made some progress in the interview.

What Are These Visuals?

Filmstrip, film clip, slidefilm, lantern slide, miniature slide—all these names, and more, too, identify materials that transmit ideas. Ironically enough, the words themselves are often confusing although they describe materials that clarify.

The confusion results partly from members of the trade who use a variety of terms, and partly from teachers themselves who have not agreed on a common terminology.

Briefly, "filmstrip" is the most common term applied to a series of different pictures on 35 mm. film. "Slidefilm," "stripfilm" and a few trade names refer to the same thing.

A "film clip" is a short piece of a motion picture film, usually 16 mm., that tells a brief story. Film clips generally run from ten seconds to a few minutes. Film clips are used principally on television programs.

A "miniature slide" is two inches square including the mount. The picture itself is made on 35 mm. film.

"Lantern slide" is the older term used to designate any slide that can be projected. The size may vary.

Aim At Specific Audiences

A motion picture planned for several audiences is often a waste of time and money. So is a set of slides, radio broadcast or newspaper story if it is intended to influence the thinking of a large number of groups.

Material prepared for several audiences and acceptable to all must be so broad that it frequently becomes very shallow.

Your audience may be fruit growers, wheat farmers, homemakers, 4-H Club members, or poultry raisers. The people you want to reach may be urban or rural. They may be well educated or at the low end of the scale.

One type of presentation and subject matter almost certainly will interest only a limited number of groups—perhaps only one. The more technical the subject matter, the more limited the audience will be.

It is better to aim directly at the audience you want to reach and pay little attention to others.

Illustrate Your Articles

Picture magazines, motion picture theaters and television have made people increasingly picture-minded. Principles that made these media successful also apply to the information work of agricultural leaders. Here are a few suggestions you may use:

- First, collect all data needed to tell the story. Select and sort data into related groups, and write the story in outline form.
- From the outline, pick visual media that will be practical. Remember that there are a number of graphic solutions to each problem.
- Use a story board, drawing a sketch that illustrates each idea or the technique you will use to illustrate it.
- Show your rough sketches to several people who are typical of the audience at which you are aiming. Get their frank opinion of the visuals you plan to develop.

PIE CHART—Don Schild, visual aids specialist with the Federal Extension Service, demonstrates a movable pie chart. It can be used to show parts of a whole in any number of fields.

Date Your News Release

Editors like to know when the release left your office. They're not particularly anxious to have you put a "release date" on, however.

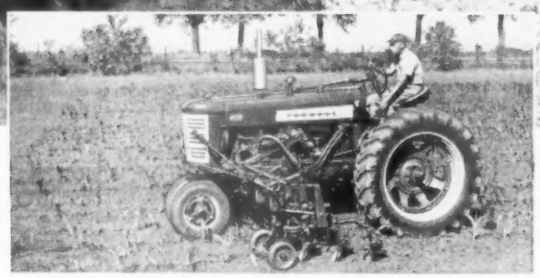
Worth A Thousand Words

The picture you send to a newspaper may be worth one thousand words *only* if the editor decides to print it. Here are a few suggestions that may help get your pictures in print:

- Before you trip the shutter, decide what story you want the picture to tell.
- Keep your subjects busy so they are not staring into the camera.
- Use as few people as possible—just enough to tell the story. Have them close together.
- Faces and hands are important. Be sure you get them in the picture.
- If the background doesn't help tell your story, make it inconspicuous. Sky and grass make good backgrounds.
- Find out whether your editor wants horizontal or vertical shots, and make them that way.
- Remember that simple pictures are easily and quickly understood.

Every day . . . in all these ways . . .

speed through more work with TA



You'll save minutes and movements on every turn when you cultivate with TA. Just pull the TA lever to slow down 30% for safer, full-power turns, then release the TA lever to resume top cultivating speed.

Pull TA lever to take bunchy windrows in stride. TA reduces forward travel instantly, yet keeps pto machines at full-rated rpm to handle sudden overloads. There's no clutch slippage, no loss of efficiency, no fuel waste.

Name any job—plowing, planting, cultivating, baling, hauling! You can do it faster, easier, at lower cost with *exclusive* IH Torque Amplifier drive on a new Farmall® or International® tractor.

TA is the big difference that puts IH tractors in a class by themselves! Ten speeds forward—two in each gear—match every job, hurry all work. TA gives you instant pull-power increase of up to 45% that keeps you going *non-stop* when others must shift.

From winter chores through fall harvest, Torque Amplifier drive puts IH tractor power to better use.

See why you're a BIGGER MAN on a new IH TRACTOR!

Your IH dealer will gladly demonstrate Torque-Amplifier, Traction-Control Fast-Hitch, Hydra-Touch hydraulics, and all other IH features.

SEE YOUR

INTERNATIONAL HARVESTER

DEALER

International Harvester Products *pay for themselves in use*—Farm Tractors and Equipment . . . Twine . . . Commercial Wheel Tractors . . . Motor Trucks . . . Construction Equipment—General Office, Chicago 1, Illinois.

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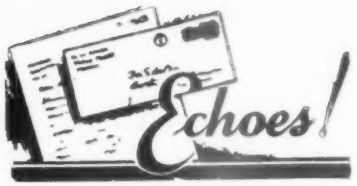


A Mighty Challenge . . .

Dear Mr. Waddle:

"Believe it or not this is the fourth epistle I have started to write you during the past month. Each one was interrupted and several days later was chucked into the waste basket. If the gods of writing are with me today this flagrant abuse of the King's language might run its course and be dropped into the nearest mail box.

"There has been considerable improvement in Better Farming Methods since you took over the helm and judging from the editorials the magazine might throw away its nineteenth century oil lamps and try some twentieth century illumination. That is if the new editor doesn't consider the light too bright and choose to relapse in the sleep-inducing lamplight.

"You ag editors must consider us to be supermen. Men upon whom you can shower an endless amount of useful and useless information. This we absorb like a sponge and give it out as soon as we are squeezed. However, we are not supermen and you could devote at least a column inch to, shall we call it professional improvement, vocabulary, speech, dress and mannerisms. All play a part in our success.

And what about the people with whom we work? What influences are we having on their mental, physical and spiritual makeup? The general feeling in high schools is that agriculture is easy. Principals use it for a dumping ground. A look at the agricultural curriculum in most high schools will leave no doubt in your mind why the feeling exists. In this age of science, ag students graduate from high school without a course in math and only a watered-down course in general science. Is this good for agriculture? Is this good for the individual? When rural boys and girls with good scholastic records and whose parents want them to go to college refuse to go with the statement, "What's the use?", should we concern ourselves with what we have done to develop this attitude?

"We in Agricultural Education are supposed to know so much about so many things that we are not competent in anything. Recently when a principal criticized an ag teacher for the very poor quality of work his students were doing in shop, he replied, "That is the kind of work we are supposed to do. This is not the Wood Shop, this is the Ag Shop." Should crudeness and agriculture be synonymous? To the multitude, agriculture means bib overalls, a tattered straw hat, and a pitchfork. At times, we don't do much to remove this antiquated picture of the farmer. Maybe you were hinting in your November editorial about

what I am trying to say in this lengthy epistle.

"While industry spends fabulous sums to advertise and package and distribute their products, agriculture just stews in its own production. And the amount of time ag leaders and editors spend on the problem of marketing wouldn't start a time clock.

"Nutritional experts tell us that one-half of our people (80 million) are malnourished. My personal surveys show that one-half of our high school students do not eat breakfast, depend on a bar of candy and pop for lunch, and if Mom is working, their suppers do not amount to very much. A tremendous market is on our very doorstep, and if we would develop it, would greatly improve the health of our people and at the same time remove our vast surpluses.

"Maybe all this does not come under the heading of Better Farming Methods, but let's not forget when we are more concerned about the material than the people who produce them, civilization crumbles."—*Joe Simon, Mount Pleasant, Pa.*

Three cheers for you, Mr. Simon. It's always good to hear from fellows who write with sincerity about the problems of the ag teachers. And you may be sure that we at Better Farming Methods are interested in the human side of teaching—whether the teacher is a county agent, vo-ag instructor, SCS worker, or any other ag leader. Many thanks for your kind comments about our magazine.—Editor

Another BFM Reader . . .

Dear Mr. Waddle:

"The August 1957 issue of Better Farming Methods is at hand and I find its contents so interesting that I am taking this opportunity to express my desire to be placed on your regular mailing list to receive copies of this fine publication as they are issued.

"This material would be helpful to me in my work in soil, water, and plant conservation here in the seven western states and the Territories of Hawaii and Alaska.

"Thank you for your courtesy in this connection."—*Wayne W. Austin, agronomist, Berkeley 4, Calif.*

Mr. Austin is now receiving a copy of Better Farming Methods each month.—Editor

Our Changing Agriculture . . .

Dear Mr. Florea:

"May I express my appreciation and congratulations to you on your article and the series on the changes in agriculture that you published in Better Farming Methods.

"I hope that these articles will be exposed to leaders in general and vocational education so that the workers in agriculture education will have a sympathetic ear for the changes that will no doubt come as indicated in your series.

(Cont'd on page 14)

Here are the answers to many questions on

Standby Electric Power

for farm use!

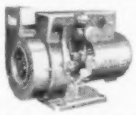
This helpful kit of literature is **FREE** *for the asking.*
Write today!

What type of generating equipment is most practical? How large a unit does the average farmer need? The answers to these and many other questions are contained in this kit of literature prepared specially for county agents and teachers.

The greatly increased dependence of the farmer on electricity makes standby electric power essential. The information in this kit will help you be more helpful to those who come to you for advice. Ask for folder SP-1070.

Describes many types of generating equipment

Water-cooled electric plants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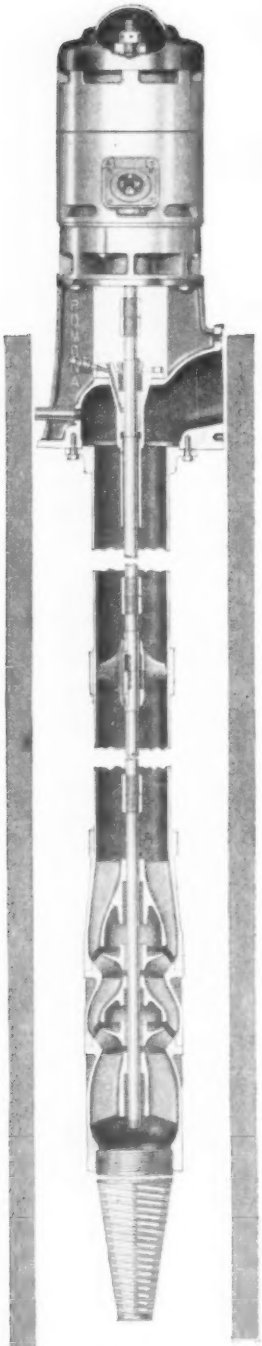

NEW FAIRBANKS-MORSE Pomona turbine pump

Before you decide on *any* pump, be sure you've seen this all-new, water-lubricated turbine pump designed especially for irrigation pumping.

For ruggedness of construction, simplicity of maintenance, and strictly quality design throughout, this new F-M Pomona turbine pump is today's greatest value. No other pump is so easily installed, so easy to adjust for varying field conditions, so simple to change between electric, belted or geared drive. Here is your top turbine pump buy at any price... your answer to low-cost, dependable pumping through the years.

For full details on this new turbine pump, ask your nearby Fairbanks-Morse or F-M Pomona pump dealer for new Bulletin 6957-1. He has every type, every size pump you need for irrigation—whether sprinkler or flood—from surface sources or deep well. Write today to Fairbanks, Morse & Co., Dept. BFM-1, 600 South Michigan Ave., Chicago 5, Ill.

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RAIL CARS • HOME WATER SERVICE EQUIPMENT • MOWERS • MAGNETOS

"Perhaps the American Vocational Association should get reprints and send them out to educators and others generally who will have a hand in the future of education in agriculture.

"The four articles will be required reading in our classes in agricultural education."—*V. E. Nylin, Wisconsin State College, Platteville.*

We have reprinted this series of articles for our readers and they have requested many copies. Mr. Nylin, we believe that most educators and agricultural leaders have read these articles. Better Farming Methods will continue to produce articles about our changing agriculture.—Editor

We Appreciate Suggestions . . .

Dear Frank:

"I was greatly impressed by your first editorial and by the entire publication for that matter. I assume you had some little something to do with it.

"You asked for suggestions as to how this publication could be helpful to ag leaders. May I suggest that you give serious consideration to more information about the rapidly changing nature of agriculture, especially as it affects and is affected by changing marketing structures. Since all of us (especially most ag leaders), are prone to continue to do more of something which has been successful, I fear that we are not facing into the problems of change with enough vision to justify continued claim to leadership.

"That—for the generalities of the matter. More specifically why not some articles on:

"1. The importance of eye appeal and how it may be created with respect to the various farm-produced foods.

"2. Necessary understanding and relationships by the man on the land of what goes on in the mills, factories, and processing plants which continue to produce the value into farm products that are necessary to enable the farmer-processor partnership to sell Mrs. Consumer what she is willing to buy.

"3. The importance of including these few points into program plans of all ag leaders for working with farmers and others at all levels of contacts.

"Trusting that everything is going well with you and your family as you get acquainted with a new job and new area. . . ."—*Austin Ezzell, Alabama Polytechnic Institute, Auburn.*

Austin, these comments about future articles for Better Farming Methods are very much appreciated. Of course, as you pointed out, we need much more information on the marketing side of farming. Perhaps ag leaders are just beginning to realize this, but marketing is an oft-mentioned word when ag leaders get together these days. So the work you fellows have done for the past several years to interest ag leaders in marketing may be starting to soak in.—Editor

(More Echoes on page 43)

Late Developments in Farm Chemicals

BOLL WEEVILS ARE NOT RESISTANT

Who says chlorinated hydrocarbons won't control boll weevils? They did in tests by the Hercules Powder Co. and a group of Louisiana cotton growers who cooperated in a cotton insect control program. Despite reports of resistance, these cotton farmers got good boll weevil control with toxaphene-DDT mixtures. What's more, these farms were located in areas with especially bad boll weevil infestations in the past.

FOOT-AND-MOUTH VIRUS PHOTOGRAPHED

The smallest virus known to affect animals—the foot-and-mouth disease virus—has been photographed by U.S. scientists. The electron micrograph of the virus shows it to be round and one millionth of an inch in diameter. Now that scientists know about the physical make-up of the virus, they hope to speed up research on control of the foot-and-mouth disease.

BOLLWORM MAY BE HEADED FOR DOOM

A virus that causes wilt disease of the bollworm may lead to the end of this pest that has caused multi-million dollar losses to the nation's cotton producers. Two scientists isolated the virus and prepared a concoction from five dried bollworm larvae that contained the bollworm killing virus.

ANTIBIOTIC NOW ALLOWED IN MILK COW RATIONS

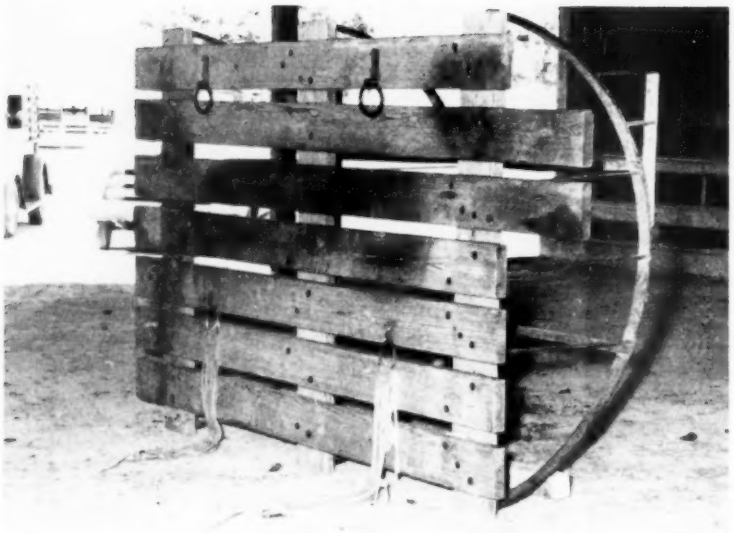
For the first time, the U.S. Food and Drug Administration has permitted the addition of an antibiotic to the ration of milk cows on a continuous basis. The FDA's decision allows dairy farmers to feed their milk cows a ration which, due to the action of the antibiotic, could reduce losses from several diseases. Government acceptance of aureomycin came after more than a year's research to determine the safety of antibiotics in milk cow rations.

NEW TYPE OF INSECTICIDE

A new type of insecticide, in no way similar to established insecticides, has been discovered by Union Carbide researchers. The new product, to be sold under the trade name Sevin, has a broad scope of insecticidal activity and good residual properties. Extensive field and laboratory tests over the past four years indicate that the product is also one of the safer insecticides.

CHANGE COMING IN PESTICIDE LABELING

The USDA doesn't like the inference of some insecticide labels that they endorse the product. That's why they have proposed an amendment to regulations for labeling these products. Under the proposed change, USDA would consider a pesticide misbranded if the label carried "any statement directly or indirectly implying that any insecticide, or constituent of it, is recommended by any agency of the Federal Government."—End

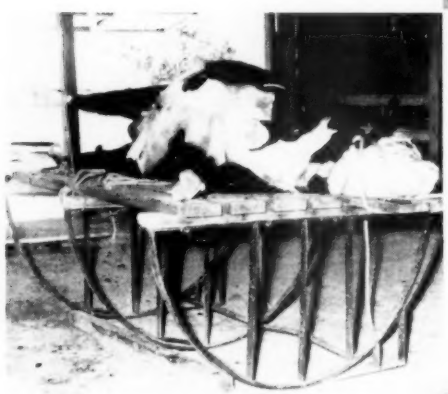


Here's an easy way to trim those hoofs before the next calf show.

This revolving table could be made by your students as part of their shop work. And they could use it later to prepare their calves for the stock shows. The table is simple to build with materials normally kept on hand around the vo-ag farm shop. Here, the hoof-trimming table in shown in position for fastening the animal aboard.

Calf Handling

Tying the calf to the table are Vo-Ag Teachers Joe Tatum (center), Ken Killion (left), and student, Milton Edwards. The animal's head is tied with a halter to the head of the table. The calf's body is secured with the girths shown in the photograph above.

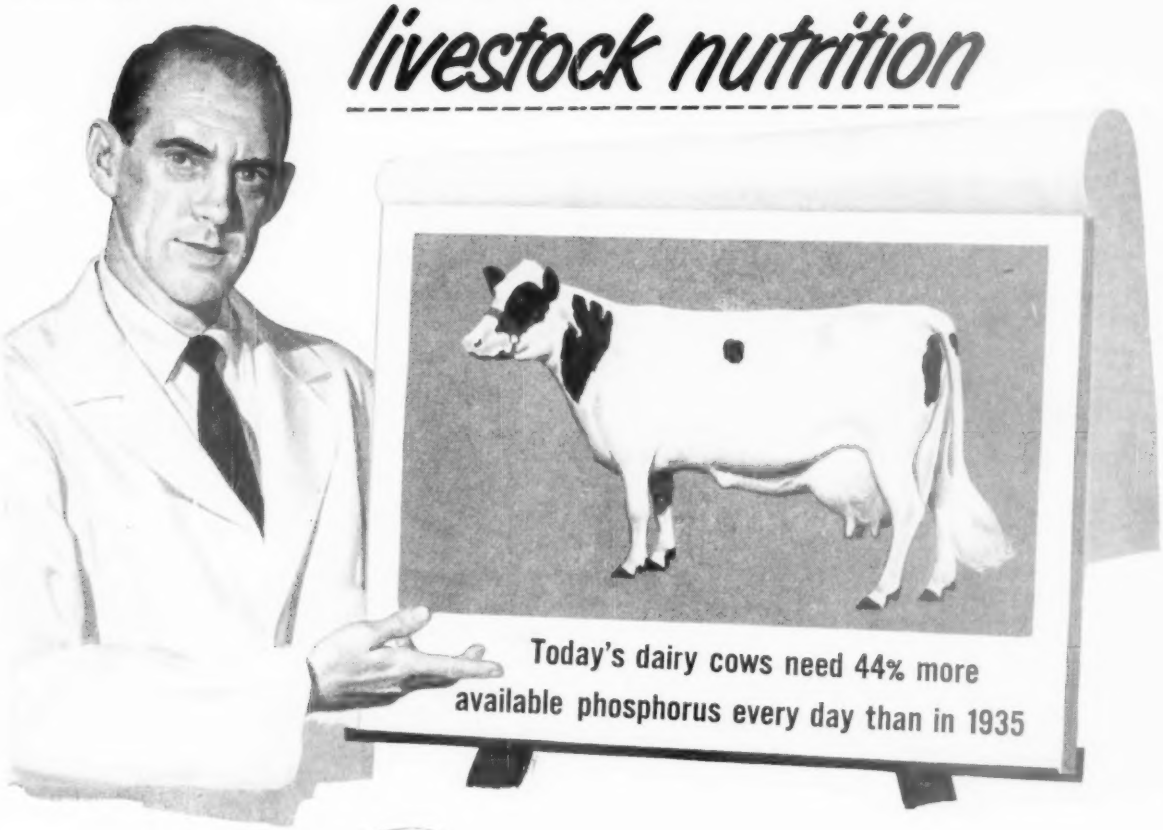


Notice in this photo of the animal ready for trimming that a piece of timber holds the table in an upright position. Too, the calf's hind legs are tied to prevent kicking. However, the tight girth over the flank helps to prevent damage from flying hoofs.

Here, trimming hoofs are Ag Instructor Joe Tatum and Milton Edwards. The hoofs are first nipped off with hoof nippers and then smoothed and shaped with the sander. After the hoofs have been trimmed, the girth ropes and halter must be kept taut while the table is rotated into the vertical position. Once the table is tilted over, the girth ropes are released and the animal is free to land on its feet. Two people may easily handle all except the largest animals on this table. If you'd like a list of materials for building this hoof-trimming table, drop us a line and we'll be happy to send them to you free of charge. Address letters to: Better Farming Methods, Sandstone Building, Mount Morris, Ill.

The dynamic role of phosphorus in

livestock nutrition



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Records show that average production reached 6,004 lbs. per cow in 1956 — compared to 4,184 lbs. in 1935. This stepped-up production involves many feed factors . . . requires up to 44% more life-giving phosphorus each day. In addition these high-producing cows are expected to drop a healthy, vigorous calf each year.

Roughages and farm grains alone can't meet the need for this additional phosphorus. The answer, of course, is supplemental feeding with a high-efficiency dicalcium phosphate . . . such as International's Dynamic DYNAFOS.

Chemically processed and purified DYNAFOS is the safe, economical way to assure complete phosphorus nutrition. 100% availability means a harder-working phosphorus for today's livestock and poultry rations.

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FARM CHEMICALS OF THE

By Dale E. Wolf

There's no way around it: Chemicals are sure to become a big factor in farm production. The facts presented in this article indicate the real impact these test tube products may wield.

If a man can supply his crop with plenty of water, it is foolish for him not to supply it with adequate fertilizer and to apply the proper chemicals to protect the crop from the pests which can attack it. Thus, it is obvious that the use of chemicals in agriculture is becoming more and more important each year.

In thinking about the increased application of chemicals in agriculture, now and in the future, we can take at least three different approaches.

First, we can consider chemicals simply as materials such as paint, plastics, fibers, and packaging films.

A second aspect would be a discussion of the physical properties of chemicals.

Third comes the direct use of chemicals which have biological effects on plants, animals, insects, or plant diseases. This is the category which I will discuss in this article. Biological chemicals used in agriculture today include weed killers, insecticides, fungicides, seed treatment materials, growth stimulants, fertilizers, and feed supplements for poultry and livestock.

These have been developed over the past 75 years by agriculturists and chemists working as a team to gradually bring under control, but not eradicate, most of the serious pests, be they insects, fungi, or bacteria, which affect plants above the soil line. During this period progress has been steady toward more effective, safer, and cheaper methods of pest control.

Certainly, the science of pest control has contributed to the more than 50 percent increase in American agricultural production since 1920—when the cultivated acreage of the United States leveled off.

The progress has been tremendous! But the search for an ideal chemical goes on. *This sought-for compound will kill all species of insects, be completely safe*

future!

to the applicator, and cause no harmful residues on the food crop treated. Just to make the search more intriguing, *this ideal chemical would also have to be so effective that insects could not build up resistence to it.* Admittedly, to discover such a compound is not an easy task.

Today, many industrial, state, and federal organizations are studying the possibility of using systemic fungicides. It is hoped that these chemicals could be applied either to the seed or to the soil before the crop is planted or at the time of planting to make the plant immune to disease. Looking even farther into the future, *it is quite conceivable that all of our plants could one day be sprayed with a chemical after a disease has been noticed in the field. This "magic" chemical would eradicate the disease which was present and prevent any new attack.*

As with fungicides, another goal of many research organizations today is to find a chemical which could be applied to the seed, soil, or young plants which would either repel or kill the insect if it began to attack the plant. *Someone may well find the one compound that would prevent both insects and diseases from attacking a given crop plant.*

The use of growth stimulants in agriculture today is a field that is just being explored. As yet, however, there is no widely used chemical for this purpose. But let's suppose, for example, that we can develop a chemical which will increase the height of an alfalfa plant substantially and force it into much greater leaf production. It might change our whole approach to harvesting this crop.

Already in the growth stimulant field, experimental treatment of snap beans and dry shell beans has greatly increased the height of the plant, the growth of the pods, and seed maturity. With chemical regulation of the growth of a plant like the tomato, for example, we might be able to telescope the harvest period from six weeks to a much shorter time so that the full production of the field could be harvested at one machine picking instead of laborious and repeated hand pickings.

Despite all of these advances in agricultural chemicals, it was not until recently that there was an indication that chemicals would demand any revolutionary concepts in the application of agricultural engineering in the production of crops, livestock, or poultry.

But it well might! For example, we have always taken it for granted that certain crops should be sown in rows. So all the machinery used from the breaking of the land right through harvest has been designed for row culture. Now, probably the original reason for row culture was to provide space between the plants so a man could walk through and hoe out the weeds. As the farmer progressed from the hand hoe to horse-drawn and tractor-drawn cultivators, row culture was still the easiest and most practical design for his fields, and provided the best system for mechanical weed control.

Chemicals Could Even Change Machinery

Now, however, chemical weed control has progressed to such an extent that the day may not be far off when crops will come through the entire season without any weed control operation being necessary. Then it may be more productive to sow what we now call row crops in some other pattern. And perhaps instead of row pickers for crops like corn and cotton we will have combines as we now have for so many crops which are sown broadcast.

Look at the impact that chemicals for weed control might possibly have on all the present concepts for designing agricultural field machinery.

In the control of insects and plant diseases, I have already pointed out how we are moving more and more toward the concept of systemic products, which is really the creation of immunity by chemicals. *We hope to see the day when we can treat seed or young plants once to obtain protection for the entire season.* This, of course, will be a radical departure from the present-day concept that you have to have sprayers or dusters and go over the fields frequently during the growing season to keep new growth protected.

In fertilization, the application of fertilizers in soluble form through irrigation water is becoming more common. This method is efficient, and *the rate of feeding various elements can be regulated to fit the exact stage of growth of the crop.*

We have discussed the possibilities of new kinds of chemicals that might solve our present problems more efficiently.

How Shall We Feed Future Population

The challenge to feed the ever increasing population can be met in three ways. One way is to resign ourselves to a more restricted and less interesting diet. The second approach is to increase the proportion of our people engaged in agriculture. The third hope for the future is to rely on the advance of technology, including, of course, advancements in the use of chemicals to increase yields. U. S. Department of Agriculture officials have estimated that if all of the improved farming practices now available were applied on all American farms, an increase in production of about 20 percent might result. Beyond that point, the country must depend upon continued research to fill its future needs.

Another Step Toward Success

By Duane B. Rosenkrans

Chemical weed control in corn was demonstrated by County Agent Lee Thompson (right) in Panola county, Mississippi. With him is Byron Lowry, a farm manager.

To give everyone the greatest benefit from cooperation between commercial organizations and agricultural workers, this young and progressive Mississippi county agent advises:

- **When you hear of something new, go right ahead and write to the manufacturer for information.**
- **Check for data on it at your state experiment station before you ask a farmer to help you demonstrate a new material.**
- **Use care in selecting a farmer to demonstrate something new. One who is looking for new ideas and who has been following your recommendations is a good prospect.**
- **Try new materials only on a small scale.**
- **In recording the results, plan to do much of the work yourself. Most farmers are not trained as you are in collecting data. Anyway, you need this information first-hand.**
- **Use every method that you can to inform farmers generally of useful results—tours, the newspaper, radio, visual aids. Both the manufacturer of the material used and local commercial folks are usually glad to help in several ways with this educational job.**

● "AS LONG AS YOU let the commercial people know that you want to get information from them to help the farmers, and as long as they know that you have a definite program, you'll get along with them 100 percent."

That's the advice of County Agent Lee H. Thompson of Sardis, Panola county, Mississippi. He should know. For his eight years of successful extension leadership include pioneer demonstrations of a wide range of agricultural chemicals under farm conditions.

Besides his own keen curiosity about new methods, he serves some of the most progressive farmers in the South. His county ranks sixth in the state in land area in farms. About a fourth of it is in the Mississippi Delta. Cotton, beef cattle and the production of feed and forage crops are in a good balance.

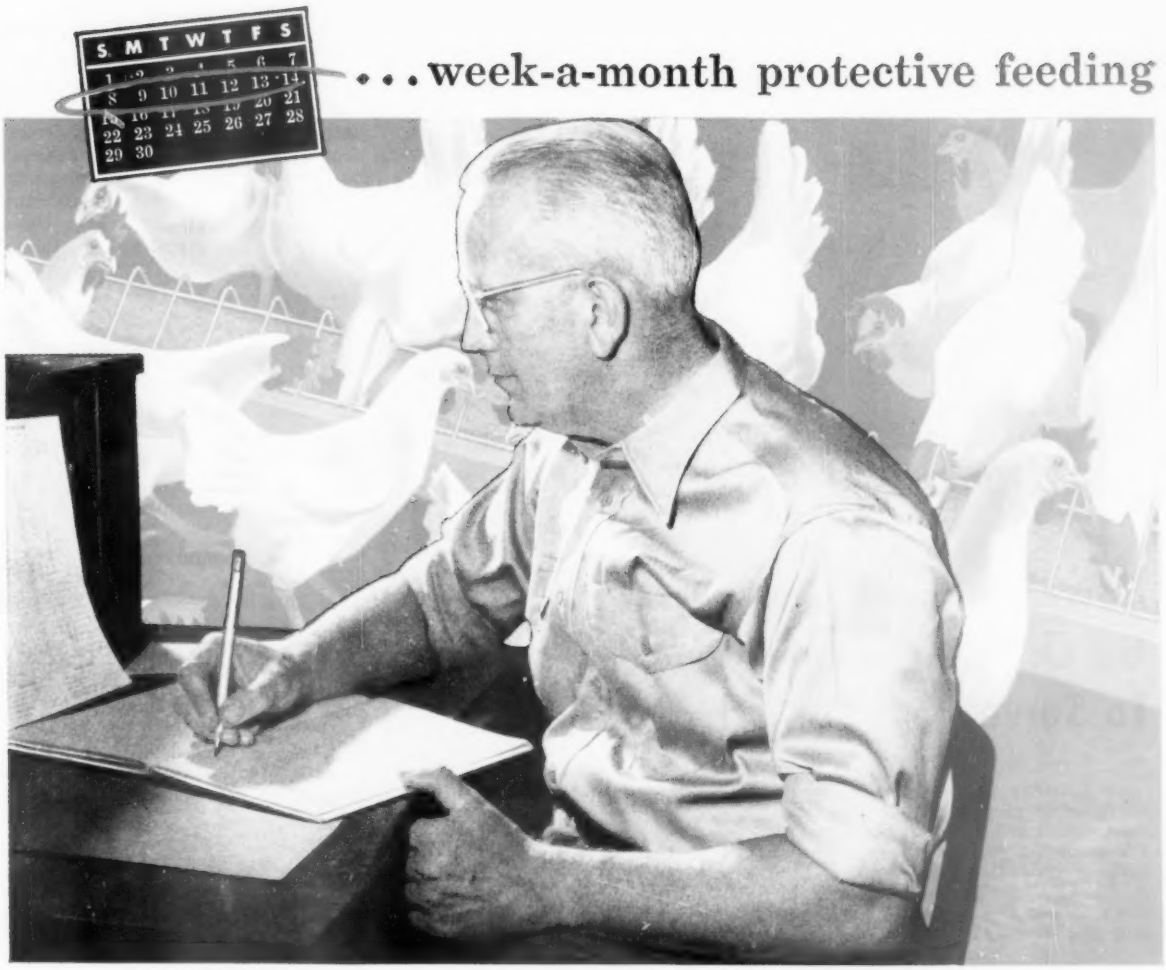
"I like to be able to help make new developments available to the farmers faster," Thompson says.

"We hear about new things that we want to try. Then we write to the company and get all the information that it has on it."

County Agent Thompson likes to have some Experiment Station data on anything that he asks a farmer to demonstrate, no matter how new it is.

"I don't believe in just pulling anything out of thin air—something that hasn't been tried. Find out what the commercial man knows about it, but also check with the experiment station. Besides helping the farmers get information faster, we try with something like a new agricultural chemical to help the research workers and the manufacturer see how it works under farm conditions in this county, as one of a large number of counties."

He often gets the actual material for demonstrating something new from the manufacturer; sometimes through an area field representative. Local dealers are seldom involved, since the materials to be demonstrated are too new for general retail distribution. At times he gets the material from an extension specialist of Mississippi State College. Occasionally he buys it for farmers who want to try it.



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The way furazolidone attacks disease germs proves it's no ordinary drug. Typical of the nitrofurans, it kills germs by interfering with their nutritional balance and throwing them off feed. Germs don't become immune to it . . . furazolidone works effectively year after year. No resistant strains survive to fight back (as happens so often with so-called "miracle drugs").

Freeing your birds from disease and stress allows them to give full time to egg laying. None of the birds' vitality is wasted fighting disease. Your hens utilize their feed for continued high production. Result is improved feed conversion, more eggs, better profit for you.

Get furazolidone's unique protection today. Use a ration containing 2 pounds of nf-180* per ton of complete feed. Feed it 5 to 7 days each month and whenever stress is likely. Ask your dealer for popular brand feeds containing furazolidone or have him mix furazolidone with your ration. Either way, make sure that furazolidone is in the feed you buy. For the complete story, write for the Week-A-Month Protective Feeding folder.

** 2 pounds nf-180 per ton is expressed on feed tags as 100 grams furazolidone or 0.011%.*

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Keeping an eye out for new ideas is an important part of Agronomist "Ed" Parker's job. Here, he inspects a weed control test.

E. M. "Ed" Parker, Field Agronomist, Spencer Chemical Co.

How Spencer Agronomists Go Out of Their Way To Serve You:

A traveling salesman of better farming methods, the Spencer Agronomist is always on the move. For example, you might find Spencer's Southeastern Agronomist, E. M. "Ed" Parker, in Florida tomorrow working on a soil testing and lime program with a 4-H Club.

A few days later, he may be in Alabama discussing plans for establishing better markets for corn, small grains or grain sorghums in his territory.

Through his constant travel, "Ed" is able to gain, and pass on, a broad picture of changing agriculture in the Southeast.

Like all Spencer Agronomists, "Ed" Parker's aim in life is to help more average farmers become good farmers . . . help our young people grow to become the best farmers the world has ever known.

If you would like to know more about the help Spencer's agronomy staff offers for farmers in your area, write direct to Spencer Chemical Company at the address shown below.

Spencer promotes research programs to encourage the development of better farming methods. One such program was a clipping study held at the University of Georgia.

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Ammonium Nitrate Fertilizer

Deciding which farmers he should ask to demonstrate something new is highly important, he believes.

"Some farmers will put it out and that's about the last of it. Others do better. Watch his operation. If he's progressive, looking for new ideas and has been following your recommendations, he'll be a good man for demonstrating something new. Some farmers come in and ask about new things.

Try some things on a small scale at first, this county agent advises. He did this, for example, when chemicals to control weeds in cotton and in corn first became available. He also kept early demonstrations of the systemic insecticides small.

Through Thompson's leadership, Panola county is ahead of most of Mississippi in the chemical control of weeds in pastures, corn and sorghum.

With the cooperation of commercial representatives and farmers, he has arranged farm variety tests of cotton, corn and milo. He also has demonstrations of various minerals and antibiotics in livestock feeding.

In evaluating these demonstrations, this county agent works closely with the farmer in the special harvesting and weighing that is often involved.

"On anything in which I'm especially interested, I go and get the results myself."

Some cooperating companies give the agricultural worker a form to be filled out in recording results. Others simply ask for it in the agricultural worker's own words. Either is satisfactory to Thompson.

Stories with pictures in the local newspapers help this county agent to report demonstration results. The radio and color slides are also useful.

He has had no problem about the use in commercial advertising of what farmers have demonstrated with his help. He would leave any decision about this to the farmer and the company.

Within his county, County Agent Thompson secures valuable assistance from implement dealers, fertilizer dealers and other groups serving farmers. In 1957, all seven implement dealers in the county paid for a printed publication on localized crop and fertilizer recommendations for the year. The 1,500 copies were put into the hands of all farmers in the county.

A County Agent's Advisory Committee, composed of livestock and crops committees, helps Thompson plan his part of the county extension program for the year ahead. They also help him to adapt research to local conditions. These farmers helped him prepare the publication on crops and fertilizer recommendations.—*End*

Here's where

magnesium deficiencies steal top profits:

Black areas on this map show where soils may contain no reserve of magnesium. In some sections—such as parts of the Atlantic Coast where potatoes, vegetables, tobacco, and citrus are grown—experiment station and soil tests have established 90% of the land to be magnesium-deficient.

Here's why

magnesium deficiencies steal top profits:

Leaves lose their green color and carbohydrate manufacture stops, because magnesium is the only metal in the chlorophyll molecule. When magnesium is missing, the plant's chlorophyll breaks down between leaf veins. Yields drop, and it's too late for top profits.

Here's how

magnesium deficiencies can be stopped!

The SPM seal means that premium fertilizer contains fast-acting, readily-available, water-soluble magnesium from Sul-Po-Mag,® also called SPM, to stop magnesium deficiencies *before they start.* Sul-Po-Mag will hold the soil magnesium level up—deficiency and crop loss cannot occur. The SPM seal is the user's guarantee that the fertilizer he applies contains genuine

Sul-Po-Mag®

Water-Soluble Sulphate of Potash-Magnesia
($K_2SO_4 \cdot 2MgSo_4$) 22% K_2O–18% MgO

S·P·M PREMIUM

Premium quality fertilizer certified through use of a balanced combination of the water-soluble magnesium and potash obtained from Sul·Po·Mag®

FREE! Further Magnesium Information! Send your name and address to "Free Booklet" at the address below. Get specific crop recommendations, experiment station results, and deficiency symptom color pictures.

INTERNATIONAL MINERALS & CHEMICAL CORPORATION

POTASH DIVISION . . . . . 20 N. WACKER DRIVE, CHICAGO 6, ILL.

Examples you'll be proud of

Yes, those fertilizer test plots can help show farmers the value of proper plant food use—if they're conducted properly.

● DEMONSTRATIONS, ONE OF the oldest tricks in the ag leaders bag of methods, remain one of their most effective teaching aids. But even this old standard method and result way of telling the farm story enjoys more success with some workers than with others.

Of course, this can be explained by the way ag leaders go about setting their demonstrations, how they carry them out, and who hears about them. Here, some of the facts behind successful demonstrations are brought out as the steps for using fertilizer test strips are explained.

Many of the fundamentals of good demonstrations you already know, such as selecting sites that are typical of the land, are well identified, and located in a spot where they'll be seen by a large number of folks. But there is much specific information that is needed for good fertilizer demonstrations.

First, it is recommended that a soil test is the best guide to follow for the plant food requirements of a particular farm or field. But, here again, the job must be done right if the results are worthwhile. And, of course, general recommendations of the state agricultural college help solve the riddle of how much fertilizer would be used for maximum profits.

But there is no substitute for checks on the farm itself!

You can set up these field checks with very little trouble and nominal expense. What's more, no special equipment is required for these experiments which are sure to pay off manyfold in added profits —if they are conducted properly.

This makes selection of the farmers to cooperate in these demonstrations very important. They should be willing to go along with your recommendations.

After the site has been selected, the next step is to decide how the test strips will be laid out, and how much fertilizer you will use. And, each plot should be big enough to be representative of the field, yet small enough so the job of harvesting and checking the yield won't be too difficult.

One-tenth acre is a good size to harvest for checking purposes in the case of most crops, but the actual test strip to be fertilized should be larger all around than the area to be harvested.

One of the best methods is to use a strip right through the middle of the field that's about one-fifth acre in total area. If a combine or mower is to be used for harvesting, be sure the strip is wider than the swath.

If your demonstration is in a big field, it's advisable to lay out plots in at least two different areas.

As to the kind of fertilizer to use—that is, the grade and ratio—the results of the soil test are the best indicator. Otherwise, base your rates on the general recommendations for the area. At least one test strip is needed for each grade and rate of application used.

It's a good idea to follow the application rate recommended by the soil test on the whole field with the exception of the test strips. If this is not done, the soil test recommendation should be followed on one of the test strips. Then use at least one or two rates higher and one rate lower than the recommended rate. It's also desirable to leave one strip completely unfertilized to check the benefits of field-wide fertilization. This means that you will need to plan for at least three or four test strips.

With these preliminary calculations out of the way, it's time to lay out the test strips. Be sure the location of the strips is on average soil. Stay away from fence rows, and don't use either the best or the poorest land in the field.

Mark Each Location

Each location should be marked well so it won't be lost. An easy way to mark plots where they end against fences is to attach a small board to the fence. Simply weave the board into the feace. If the fence is barbed wire, the markers should be stapled to the wire. When using more than one strip, it's also a good idea to make a rough sketch of the field with the strips marked in, along with all information about treatment of each strip.

The fertilizer can be applied either before or at the time of seeding, depending upon equipment available and recommended practices for the crop and area. If no fertilizer application equipment is readily available,

the fertilizer can very easily be spread by hand.

In all instances where broadcast application is made, be sure to work the fertilizer into the top 2 or 3 inches of the seedbed. If the fertilizer is broadcast by hand, be careful to get an even application.

From here on until harvest time, the test plots should be treated the same as the rest of the field. When harvest time comes, it's time to check the results.

The methods of harvesting and checking results will vary somewhat from crop to crop, as explained below. There are two important steps to remember, however, which are common to all crops: (1) Lay out accurately the area of the test strip to be harvested. It should be near the middle of the test strip. (2) Lay out and harvest for check purposes a strip of equal size adjacent to the test strip.

After all the yields have been checked, it's time to make comparisons. This means interpreting the results in terms of profit and loss.

For each treatment used, subtract the yield of the check strip from the yield of the test plot. This gives the extra yield per acre attributable to the fertilizer treatment.

Now multiply this extra yield per acre by the value per unit of the particular crop, and subtract the extra cost per acre of applying fertilizer at the rate used on the test strip. This gives the extra net return per acre from the fertilizer. Or, to put it another way, it gives the amount lost per acre by not using fertilizer on the whole field the way it was used on the test strip. The approximate total net loss for the current year can be calculated by multiplying the net loss per acre by the total number of acres in the crop.

If more than one fertilizer treatment was tried, this calculation should be made for each. The results will show clearly which is the most profitable, and can be used as a guide in planning next year's.—*End*

★

"I'm not loafing, boss . . . I'm mapping strategy."

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FOR EVERY
IRRIGATION NEED

WATER WHERE AND WHEN YOU NEED IT . . . that's what you make sure of when you hook your irrigation pump to Continental Red Seal power. The unmatched breadth and diversification of the Red Seal line places at your disposal a wide choice of models, spanning an output range from 33 to 280 horsepower, and available for use on all standard fuels. ANY irrigation system —any power equipment—is at its best when teamed with Continental Red Seal—the power plant engineered expressly for its job.

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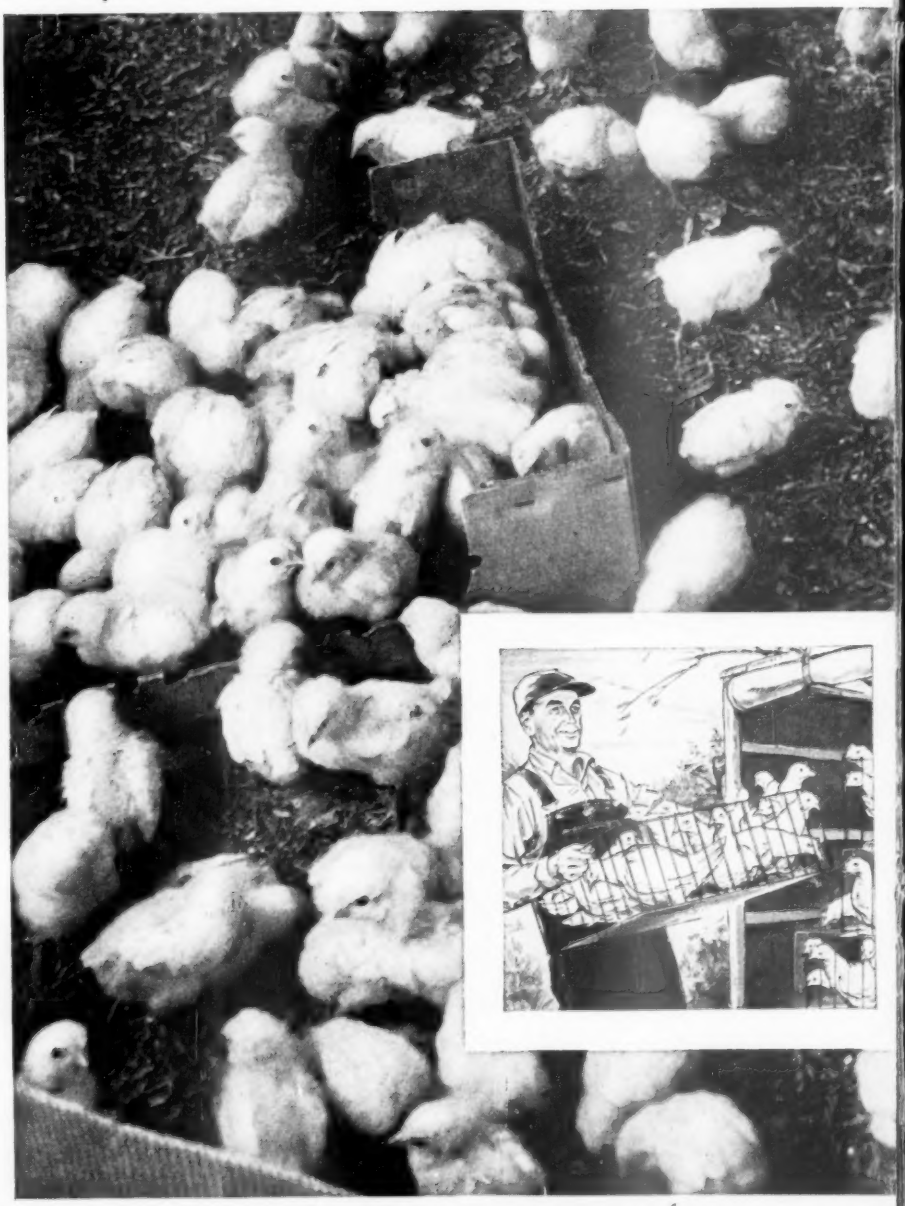
Build up their health and your

Broilers and Layers



Here's how:

1. Start your broiler or layer chicks off right. Mass-vaccinate them with BIOLATOR Dust Vaccines. "Dust away" Newcastle Disease and Infectious Bronchitis at the rate of 10,000 birds per hour. You save time, money and labor.

2. Use good starter and grower feeds containing wide-range AUREOMYCIN Chlortetracycline. It's the sure way to protect chicks against CRD, non-specific enteritis, synovitis, sub-clinical disease and the effects of stress. AUREOMYCIN helps them grow fast and sturdy, gives them the vigor they'll need to be profitable to you.

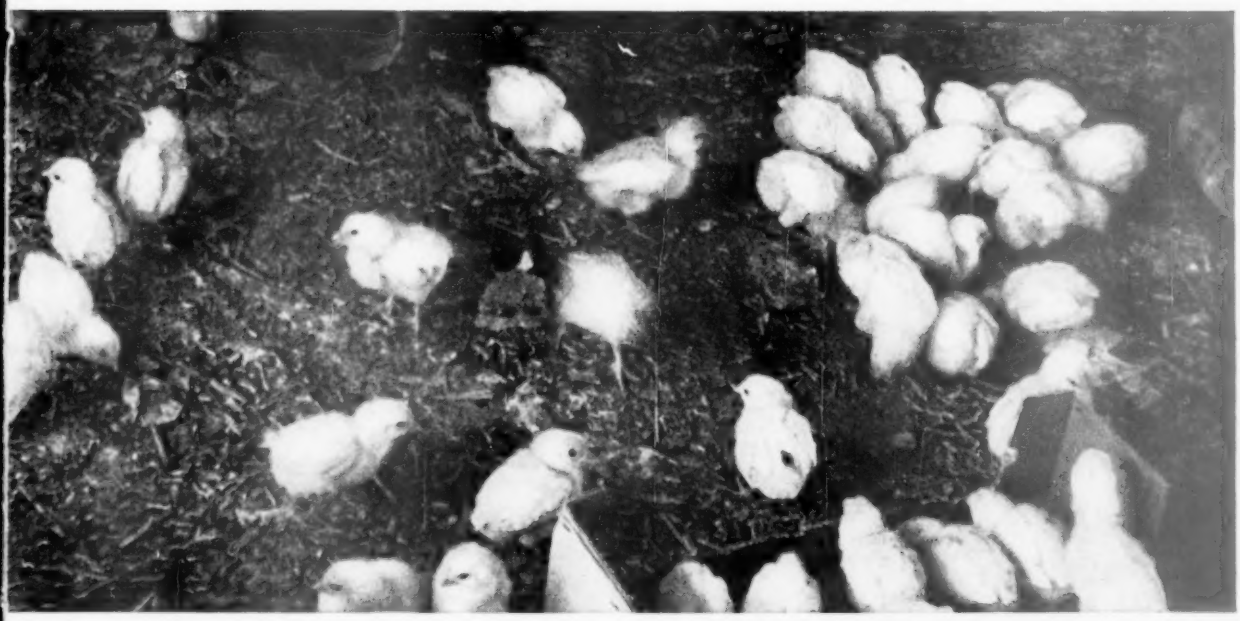
3. If at any time, you have trouble with birds not eating, give them AUREOMYCIN Soluble in the drinking water. It's fast-acting and effective.

4. For coccidiosis, pullorum disease, coryza or acute fowl cholera, SULMET Sulfamethazine is the all-around answer. Just add SULMET to drinking water. It quickly produces effective blood levels of sulfamethazine and knocks out disease at *minimum* cost per treatment.

AMERICAN CYANAMID COMPANY • FARM AND HOME DIVISION • NEW YORK 20, N. Y.

This is Cyanamid's 1958 advertising to your poultry growers.

income the Cyanamid way!



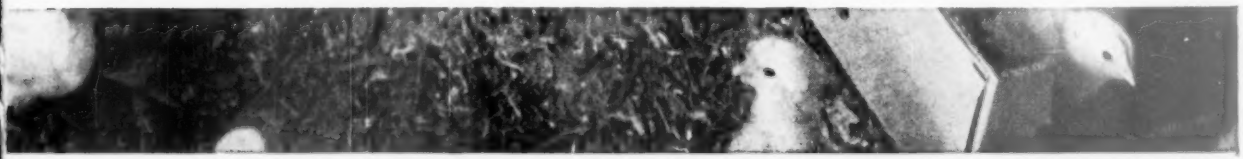
FOR BROILERS Follow the four-point program on the opposite page and you'll send fine, meaty birds to market at less cost, in less time, on less feed. It's your *all-around* profit program!

FOR LAYERS During the entire productive life of your layers, remember one thing: You never really pay for AUREOMYCIN, *it pays you.* Use good layer and breeder feeds containing AUREOMYCIN and you'll *get more eggs per pound of feed.* Your extra profit is far more than the cost of AUREOMYCIN. You also get more early and late season eggs and keep production up under stresses.

Keep AUREOMYCIN Soluble on hand for immediate spot use in the drinking water if at any time birds don't eat well or egg production falls off. With AUREOMYCIN Soluble, you can restore normal vitality – *and egg production* – quickly.

Both AUREOMYCIN Soluble and AUREOMYCIN in the feed fight "colds", CRD, blue comb and invisible diseases.

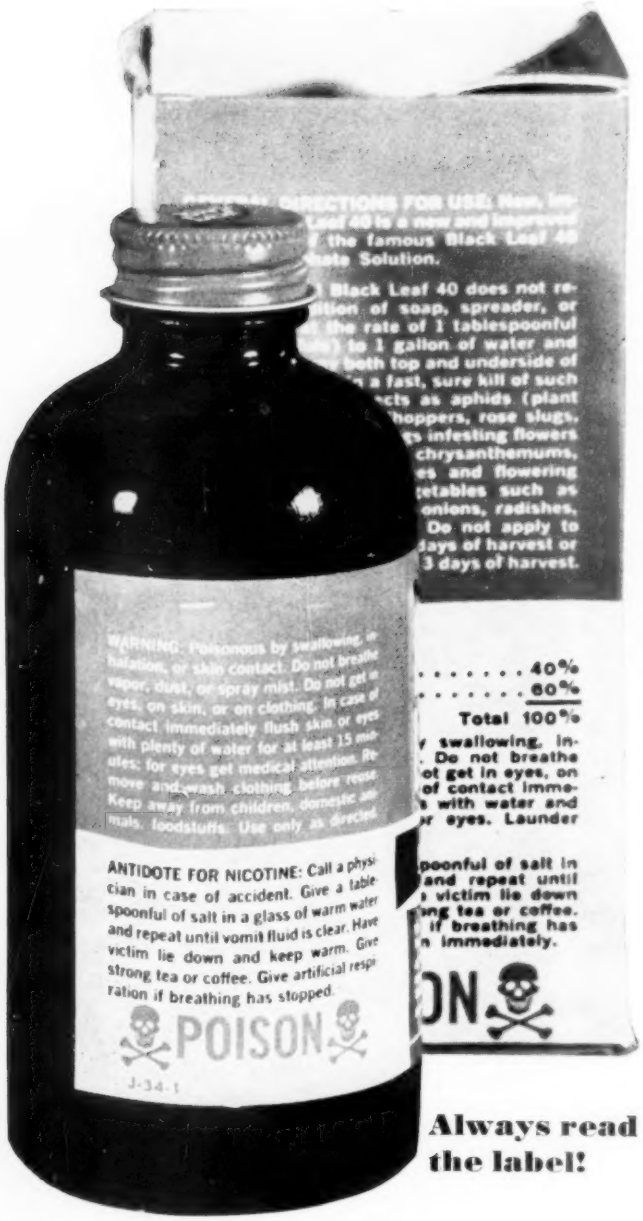
Ask your hatchery, druggist, feed dealer or veterinarian for BIOLATOR Dust Vaccines, AUREOMYCIN Soluble and SULMET. Ask your feed manufacturer or feed dealer for good broiler and layer feeds containing AUREOMYCIN.



AUREOMYCIN® SULMET® BIOLATOR® dust vaccines

What price is safety?

By Kenneth V. Fiske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a fast, sure kill of such
as aphids (plant
hoppers, rose slugs,
infesting flowers
chrysanthemums,
and flowering
onions, radishes,
Do not apply to
days of harvest or
3 days of harvest.
40%
60%
Total 100%
swallowing, in-
Do not breathe
ANTIDOTE FOR NICOTINE: Call a physi-
cian in case of accident. Give a table-
spoonful of salt in a glass of warm water
and repeat until vomit fluid is clear. Have
victim lie down and keep warm. Give
strong tea or coffee. Give artificial respi-
ration if breathing has stopped.
POISON
J-34-1

Always read the label!

● UNTIL A FEW YEARS ago, agricultural use of chemicals was confined to a few well-known substances that had general acceptance for their limited usefulness. These uses included such things as fly control, noxious weed killers, and seed grain fumigants. Accidental poisonings did occur occasionally but the tolerances set for the use of these few chemicals provided fairly satisfactory protection when using normal precautions.

In the last few years much attention has been drawn to newer substances that have been made available both in the insecticide and crop chemical field. During a recent fiscal year in California nearly 10,000 different varieties of agricultural poisons were registered with the Department of Agriculture. Many of these have been dramatic in their effect; they offer hope for a vast increase in food supply and the preservation of various materials that are important to home life, industry, and agriculture. Furthermore, technological improvements have provided new methods of applying these agents, so that today the hand spray and the horse drawn spraying machine are regarded as obsolete.

New chemicals and new methods of application create new problems for the safe use of these materials by farm people.

Among the hazards involved are those of skin toxicity to the chemical, inhalation, stomach poisons, and contact poisons which might result in serious injury, sickness or even death. Statistics show that while the use of agricultural chemicals has increased, the death rate attributed to them has decreased to a point where it is of small significance. We must remember however, that it is not only the death rate but the rate of those time-consuming illnesses that are important to agriculture. A 14 month survey of Iowa farm accidents conducted by the Iowa Farm Bureau Women showed no fatalities from agricultural chemicals, but non-fatal accidents caused by swallowing, inhaling and handling of agricultural chemicals were reported with the swallowing of the chemicals the leading cause of an accident. It is well to remember that accidents with agricultural chemicals can and do happen to the entire family. The wife, the children, as well as the agricultural worker.

Agricultural chemicals are too many and too varied to discuss in detail. The least toxic of those derive from plants such as pyrethrum and rotenone. Even these with low toxicity can prove fatal to marine life and in large doses have made humans very ill. The exception in this group is nicotine, whose compounds are deadly. They can cause serious poisoning or death if inhaled, swallowed or absorbed. Insecticides containing fluorine compounds are also very poisonous.

The chlorinated insecticides are in the majority and contain such compounds as DDT, chlordane, and benzine hexachloride. Chlorinated insecticides are toxic and in general affect the nervous system. All re-

The modern apple grower must overcome many obstacles to produce a profitable crop. Along with other problems, he has to spray as many as 14 times a year to control insects and diseases, and he must spray efficiently to make money.

CRAG Glyodin fungicide plays a vital role throughout the entire spray season. It provides excellent control of apple scab and summer diseases. It is a quick-mixing liquid that never clogs nozzles, and leaves no sediment in the tank.

CRAG Glyodin suppresses mites. A Glyodin scab spray program often enables growers to save the cost of several mite sprays. Since CRAG Glyodin is a good spreader-sticker, some insecticides may tend to be more effective in combination with Glyodin than in combination with other fungicides.

On the basis of performance alone, CRAG Glyodin is a premium product—and it has another big advantage in its low cost. For 75 cents per 100 gallons of early spray and 54 cents per 100 gallons of cover spray, CRAG Glyodin provides all the above benefits. No other apple fungicide can match it!

CRAG Glyodin is one of the profit-building chemicals for agriculture developed by CARBIDE research. Others now in use are CRAG Sesone herbicide and CRAG Fly Repellent. For the latest information on these CRAG agricultural chemicals, write to the address below.

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"Crag," "Union Carbide," and "Sesone" are trade-marks of Union Carbide Corporation.

COMING IN MARCH

. . . with emphasis on WHAT'S NEW?

AGRICULTURAL HUSBANDRY ISSUE

The March issue of Better Farming Methods is a report of product application in agricultural husbandry. It is designed to help ag leaders demonstrate good husbandry practices and influence their use by farm people.

Special emphasis will be given to WHAT'S NEW in livestock, crop and soil husbandry.

BETTER FARMING METHODS

Sandstone Building, Cullman, Alabama
Mount Morris, Ill.
Palo Alto, Calif.
New York

quire protection against inhaling, swallowing, or skin contact. Among the newer chemicals developed are the highly effective organic phosphate preparations. All of these are highly poisonous and dangerous to the worker. They are readily absorbed through the skin, mouth, and the mucous membranes of the eyes and respiratory tract. As they are only slightly irritating, they give little immediate warning and every precaution must be taken to protect the user.

Poisoning by organic phosphates may result from one heavy exposure, or as is usual, from frequent smaller exposures. The effect of these compounds may be cumulative. All chemicals, of whatever nature should be stored, mixed, and used with caution. Carefully check all labels. Any warnings or instructions should be carefully followed. Be especially careful of new products.

Each county in the United States has its own individual problem; therefore it is essential that the agricultural leaders in a local community keep up-to-date as to what the new chemicals appearing on the market are, will do, and the inherent dangers in their use. This is a program of self education. Through an expanded educational program, county agricultural agents, vocational agricultural teachers and other local leaders can assist in eliminating dangerous conditions and practices in handling, storing and using these chemicals. The program might well be designed to make farmers "LABEL CONSCIOUS." What can you, as an agricultural leader in your community, do to help continue the fine safety record which agricultural chemicals now enjoy?

Taste Test Method Works

Hold a demonstration. Use an enlarged picture of an agricultural chemical's label. Go over every point on the label. To further emphasize the need for reading the label, pass around a container of salt and a container of sugar which are unlabeled. By chance you could differentiate between the salt and the sugar 50 per cent of the time but this only makes the point that you only have to be wrong once, with many agricultural chemicals.

Do not attempt to hold special schools on safety as it concerns agricultural chemicals, but instead integrate a safety lesson into the spray schools that you hold in your community, the agricultural chemicals meetings which you may hold, or into local newspaper articles you may be writing. Usually it is a good idea during the spring season to integrate safety precautions with agricultural chemicals into all phases of your work.

DO NOT STRESS THE DANGERS OF USING THE CHEMICALS. STRESS THE IMPORTANCE OF FOLLOWING THE INSTRUCTIONS.

Stress becoming label conscious, for the label clearly states the dangers involved, instructions for first aid treatment, and notes for physicians which includes the antidote.

Make use of every avenue of mass media throughout the year as agricultural chemicals are now used not only in the growing season but in barns, buildings, and even in the farm homes during the rest of the year. A local television station is an excellent place to demonstrate to a large audience the effectiveness of reading the label.

Dealers Can Help, Too

Enlisting the help of agricultural chemical dealers in your area usually means that they will be most happy to display posters and enclose informative stuffers in their billing which will state the safety precautions needed when handling agricultural chemicals. After all, no chemical dealer is hoping to kill his customers! The equipment dealers distributing applicating equipment can also be helpful in the same manner.

In order to make a community more conscious of this potential problem, farm chemical accident records should be kept. This can be done by surveys conducted by youth organizations, or adult farm organizations.

In a basically agricultural community the necessity for using agricultural chemicals is accepted, as is the potential danger which some of these materials bring to those who use them. Because this problem of hazard to the user has been met forthrightly the safety record for agricultural chemicals is good. Each farmer must take a direct and personal responsibility for the chemicals used on his farm, the amounts, methods and timing of application. Neighbors should be advised when farm chemicals are to be applied and recognize the necessity for their use.

In the continuing battle with nature, man, with the aid of science, is at present fighting to a draw. The development of agricultural chemicals has been, and will continue to be an ever increasing aid in this battle. The toxic properties necessary in some agricultural chemicals in varying degrees are toxic to man also. Recognition of this fact is the first step in using agricultural chemicals with safety. READ—HEED, THEN PROCEED.—*End*

J. I. Case Introduces New 1960 Line of Farm Tractors

A "new look" in farm tractors along with several engineering advances were featured in the World Premiere of the 1960 line of J. I. Case Company tractors at Phoenix, Ariz., in November.

Said to be the most complete line of wheel and crawler tractors ever offered by a single manufacturer, the Case line includes eight wheel-type and four crawler units.

The new Case-O-Matic Drive, similar to that available in the modern automobile, created a great deal of interest at the press and dealer demonstrations. This new drive enables the farmer to select the proper gear, and then complete his job without shifting, stalling, or using the clutch. It links the engine with the transmission hydraulically to produce "power automation."

Instead of having to operate with a fixed speed within each gear setting, the new Case-O-Matic Drive provides a variable speed in every gear range with constant power to handle each particular job. Tractors equipped with the new unit have eight forward speed ranges. The new drive unit gives the tractor the ability to instantly and automatically increase its pulling power to match the requirements of the load.

NEW-LOOK TRACTORS—Shown above is a partial line-up of the "new look" 1960 Case tractors.

★

Headquarters of the Poultry & Egg National Board have been moved to the Willoughby Power Bldg., 8 S. Michigan Ave., Chicago 3, Ill.

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GET THEM BACK INTO PRODUCTION!

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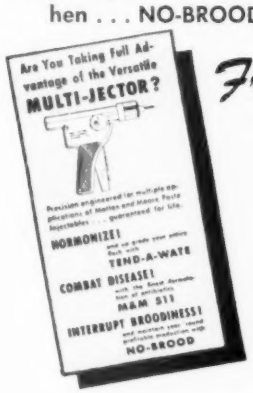

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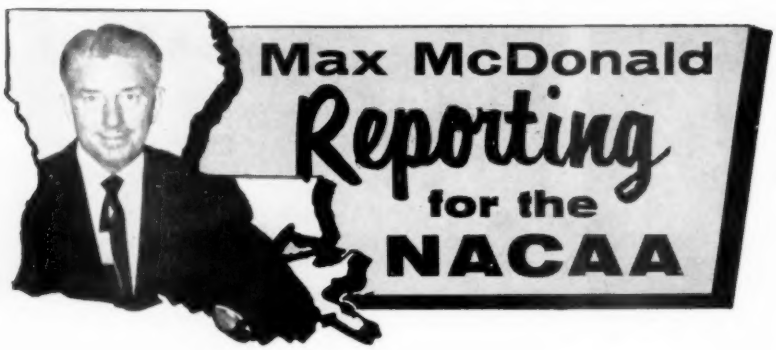


Should You Survey?

How can an educational program be planned if it is not known who or what you are planning for?

This was the question which John Young, Monroe county, Iowa, County Extension Director, tried to answer by conducting a survey of his county. Young hoped that he could find out who and what he had in the way of rural people so that his respective programs could be more effectively planned and efficiently used.

The survey sheet along with instructions was sent out to one cooperator in each four square mile area over the county. A time and place were set to return three surveys with approximately 95 percent returned by the deadline date. A personal contact follow-up made the survey complete.

The principal questions asked concerned age, occupation, place of part-time employment, and if part-time employment was wanted, etc.

Although this type of survey entails quite a large amount of work, Young recommends it strongly, especially to a new agent in a county. He would not only gain some very usable statistics, but through this method learn quite quickly just what he has to work with in his county.

What About Urban Agents?

Essex county, New Jersey, has a million people in an 80,000 acre area.

R. E. Harman, county agent, says the census lists 154 farms, but actually he has less than 100 "dirt" farmers. So you ask the question, what do two men agents and three home agents do?

Well, 4-H club work takes up most of the time of two agents, with a large part of their time being spent on home grounds improvement and related projects. Ornamental horticulture is an important and popula. part of the agents' work. Hundreds of urban people attend the two annual land planting demonstrations which are held. Lawn establishing and renovating; shrubbery pruning; landscape plans; backyard gardeners' demonstrations; planting plans for schools, libraries, churches, etc.; shade tree problems; and testing backyard soil samples are some of the many tasks an urban county agent does. Harman says they work closely with garden club organizations, civic groups, seed and fertilizer dealers, and nurseries to keep these people informed on latest recommendations.

Student Trainees

Training for Extension work is actually given "on the job" to juniors of the College of Agriculture of Penn State.

This summer 15 agricultural students have been working as summer assistant county agents. They are now enrolled as seniors in agriculture in Penn State. This type training is given in order for these young men to get a taste of Extension work. Then, if they do go into county agent work, they will have a better idea of what type job they are getting. And, of course, this money will have been well spent in the Penn State Extension Service.

Old Agents Fade Away?

Retired county agents don't just fade away. Two retired county agents of Pennsylvania prove this point.

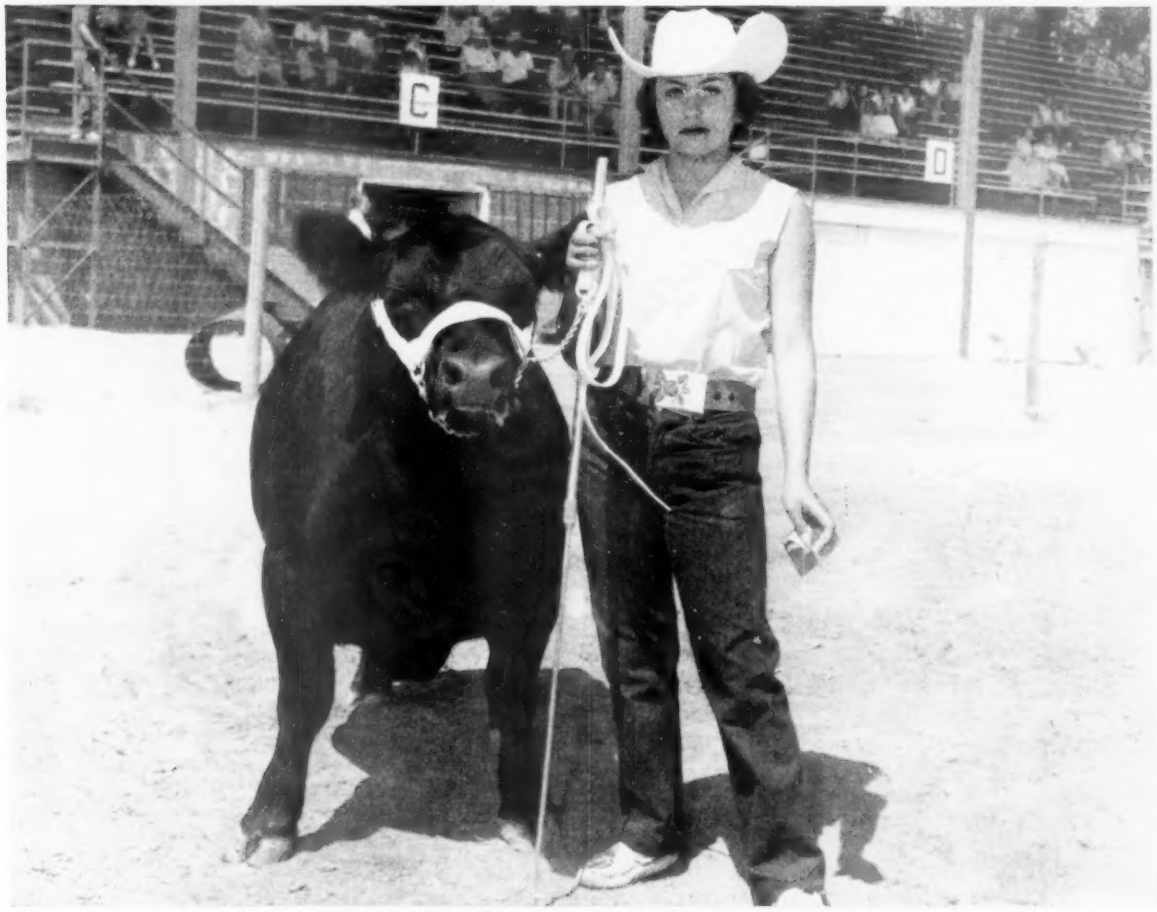
Buff Coleman, retired agent of Northhampton county is now full-fledged manager of the Pennsylvania Livestock Exposition. Buff worked very closely with the Exposition while he was county agent, so it was a natural to appoint him manager after his retirement.

A better mousetrap is not beating a path to retired agent Ross Gridley's door. But a better set of caponizing instruments are. Ross, retired Beaver county agent, turns out these instruments in his basement workshop, and poultrymen, county agents, ag teachers, and equipment dealers keep him busy with orders.—*End*

NEWS COLUMNS—John Walker, center, Clarion county agent, discusses his recently inaugurated weekly news column with the local newspaper editor, left, while Lawrence Ecklund, assistant county agent, right, looks on. News columns are a popular way of writing about Extension.

VISIT QUEBEC—New York County Agricultural Agents added an international angle to their professional improvement program with a two-day visit to the Dominion Experiment Station at Lennoxville, Quebec. Pictured above with Ernest Mercier (left), station superintendent, are Walter Durniak, George Heugler, Edgar Buckley, and Merle Reese.

PURINA VISITS ANOTHER FARMER OF TOMORROW



Pat Stout of Masters, Colorado, and "Junior," her heavyweight Purina-fed Angus calf that was declared Reserve Champion steer over all breeds in the Junior Show at the Colorado State Fair this past year.

Pat won many top honors

Pat Stout, a pert young lady from Masters, Colorado, took most of the top honors at the Morgan County (Colo.) Junior Fair this past year. She also won first place in the class of three calves in the Junior Show at the Colorado State Fair. And, "Junior," her heavyweight Angus steer, was acclaimed Reserve Champion over all breeds at Colorado's State Fair Junior Show.

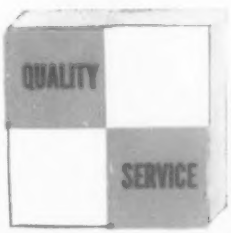
Yet, this was the first year Pat had a fat beef project in her local youth club.

A Purina feeder (and a mighty attractive one), Pat is headed for many more successful years—both as a feeder, an exhibitor of fine cattle and as a useful young leader.

Purina congratulates you, Pat Stout, and wishes you well.

* * * *

You will find that Purina Dealers everywhere are ready to help you solve livestock and poultry feeding and management problems. Whether you are feeding for the show ring or for market, remember, Purina will help you produce more meat, more milk, and more eggs—at low cost.



FEED PURINA...YOU CAN DEPEND ON THE CHECKERBOARD

Plant Stretchers

By Paul C. Marth

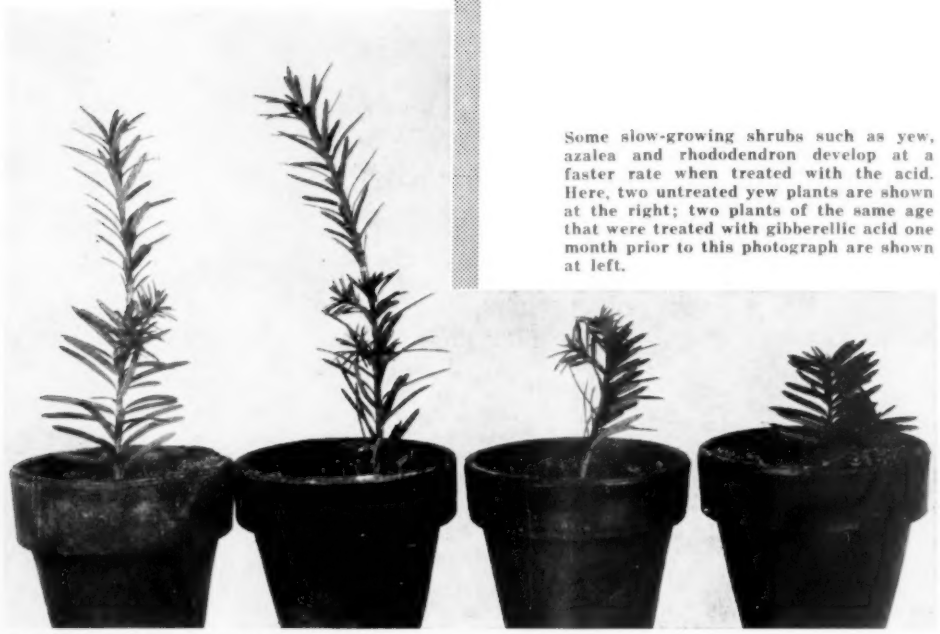
● THERE HAS BEEN quite a bit of interest among agricultural workers recently about the growth-stimulating compounds—the gibberellins. This story contains the answers to many questions about these chemicals.

The gibberellins are natural plant growth regulating organic chemicals produced by the fungus *Gibberella fujikuroi* from whence comes their name. The fungus is grown in mass liquid culture medium of one gallon or 1000 gallon or more capacity for a period of 4 to 17 days and the gibberellins are then extracted by chemical procedures. The process is quite similar to that used in the production of antibiotics.

The *Gibberella* fungus itself is a serious disease of rice, producing substances that cause the rice plants to become tall and spindly and fall over in the water. The Japanese call it the "foolish seedling" disease and their scientists have been the most prolific workers in studying the disease, isolating the causal fungus organism in 1898 and as early as 1926 the Japanese scientist, Kurosawa, proved that the fungus itself did not produce visible disease symptoms. The symptoms were caused by chemicals made by the organism as it grew on rice. By 1939, Japanese chemists had isolated three chemicals in pure form and called them, as a group, "gibberellins," and in addition to rice caused excessive growth in a wide variety of plants. Perhaps the most widely distributed one is now called gibberellic acid. In most instances all three compounds produce about the same plant growth responses whether applied separately or as the mixture. It seems rather ironical that we are today using one of the greatest disease problems of the Japanese as an aid in growing plants.

Who Makes Gibberellins?

Most of the companies that produce antibiotics commercially are now making gibberellic acid (gibberellins), either as a large scale venture for immediate sale or on an experimental trial basis. There are other large and small



Some slow-growing shrubs such as yew, azalea and rhododendron develop at a faster rate when treated with the acid. Here, two untreated yew plants are shown at the right; two plants of the same age that were treated with gibberellic acid one month prior to this photograph are shown at left.

companies that produce chemicals, other than antibiotics, by fermentation procedures. These companies are eyeing the experimental development of gibberellic acid for agricultural use and can readily convert to produce it.

The British, Imperial Chemical Industries Ltd., company has done much experimental work in the production of gibberellic acid and perhaps were the first to sell it in this country in 1956, for $40.00 per gram ($18,000 per pound). Some kinds of plants respond quite readily to applications of less than one millionth of a gram, so even at this price, experimental work could proceed. The company was most generous in supplying, without charge, enough of the chemical for scientists to conduct experiments in many parts of the world.

What Does It Cost?

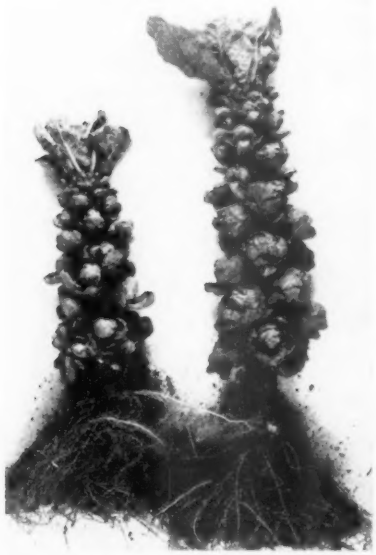
Recent quotations have placed gibberellic acid at $10.00 a gram and indications are that the price will be lowered considerably below this figure. The relative price of the chemical is greatly dependent upon the outcome of experiments, now in progress, designed to determine just how useful the chemical will be to agriculture in general.

Gibberellic acid is indeed a fantastic chemical. It has shown some kind of growth response on practically all economic plants that it has been tested on, including agronomic, forestry and horticultural plants in more than 50 different species. The responses themselves are quite varied, depending on the kind of plant, stage of development when treated, and the amount of chemical applied.

For instance, most plants have been made to grow taller, some heavier and with more leaves, others spindly and with smaller leaves than the untreated plants; the seeds of lettuce and other plants have been induced to germinate under conditions that do not favor germination; biennial plants that require two years to bear seeds, such as cabbage, sugar beets and the like have been made to produce seeds in one year or less. In the case of sugar beets the plant breeder can obtain several generations a year.

The chemical has also substituted, in part at least, for the cold requirement of woody plants such as oak and maple, and floricultural plants such as hydrangea; some kinds of plants have been induced to flower earlier (African violet, rose, sunflower, dahlia), but others flowered later (salvia, sweet pepper) than the untreated; gibberellic acid has promoted the development of flower buds (cyclamen, strawberry) that ordinarily do not develop.

Gibberellic acid causes an increase in growth rate of most all the common garden crops and flowering annuals. Some of the most spectacular results have been with forest or shade trees such as willow oak, black walnut, red maple, poplar, loblolly pine, yew, rhododendron and others. The average height of treated black walnut seedlings, for instance, was six and one-half feet while the untreated averaged one and one-half feet in one season. The plants were treated soon after germination when about four inches tall. The stem diameter was correspondingly increased by treatment. Many woody plants characteristically make one flush of growth, set a terminal bud and then require a long dormant period (usually combined with cold) before they will grow again. Gibberellic acid treatment sometimes overcomes this type of dormancy.



Brussels sprouts, left, untreated plant; right, plant of same age that was sprayed with gibberellic acid (500 parts per million) two months before harvest. The treated plants developed more stem growth and buds (heads).

Some Plants Don't Respond

Although the loblolly pine has proven to be fairly responsive to gibberellic acid treatment under greenhouse conditions, other conifers such as white pine, Virginia pine and white spruce showed little or no stimulatory growth effects even when treated with relatively large dosages. It is possible that the treatments were not applied at the proper time or the chemical did not penetrate into tissues that could respond to it.

In early experiments when the acid was applied to several kinds of young transplanted plants and also with cuttings of rose, holly, privet and hydrangea, the chemical had an inhibi-

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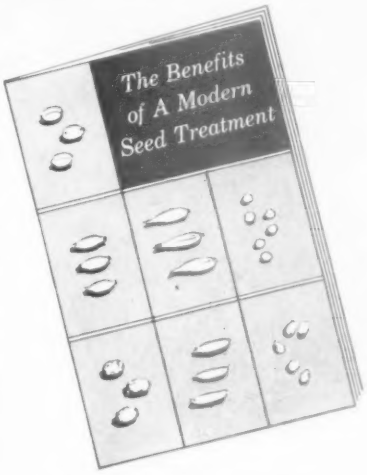

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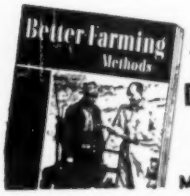

Better Farming Methods

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tory effect on root formation and early growth. Later experiments have shown it advantageous to delay gibberellic acid treatment for a week or so to allow young transplanted seedlings to develop a few new roots.

Ag Leaders May Experiment

Gibberellic acid is now available for experimentation or demonstration by county agents, science teachers, students and home owners. Many leading garden supply stores now carry one or more brands under descriptive trade names. Drug companies that produce antibiotics are also a source of literature and information on gibberellic acid. The experiments in many of the state experiment stations have now progressed far enough so that they also can furnish information about the chemical. At the present time, none of these agencies are recommending the treatment of large acreages of plants.

There are a number of reasons for this; first, the cost at present would be prohibitive, secondly, the results with large acreage crops, such as corn, wheat, cotton, soybeans, etc. have not progressed far enough or have been conclusive enough to warrant such recommendations at this time. In the event that large scale applications to the above mentioned crops is found to be beneficial, the presently available spraying, dusting or seed treatment equipment could be used. Gibberellic acid has been found to be compatible with the recommended rates of application of the newer organic insecticides and fungicides if a combination treatment were desirable.

Are Gibberellins Toxic?

There is very little information available on the toxicology of gibberellic acid. Tests with small animals such as mice and rats have indicated that mammalian toxicity of the chemical is very low, whether administered orally over a period of several months or intravenously. The chemical did not cause irritation to the skin or eyes and appears to be quite safe to handle.

Since the actual amount of gibberellic acid that is used for treating plants is very small it is difficult to detect residues by the use of chemical methods presently available. At the present time the U.S. Food and Drug Administration has not set tolerances for gibberellic acid or approved its use on food products for consumption.

Most garden vegetables and grasses that have been induced to become overly vegetative through application of gibberellic acid generally become moderately to severely chlorotic in appearance. This condition if not too far advanced, has been corrected by application of additional nutrients, particularly nitrogenous ones.

Light May Cause Growth

Plant scientists working on the effects of different kinds of light have found that some kinds of plants are given a growth stimulating gibberellic-acid-like "jolt" when given a brief exposure to red light occurring in the dim part of the spectrum. They call this response the "Far-Red" effect.

On the basis of early work with extracts of pollens, which contain very active growth-stimulating chemicals, U.S.D.A.'s Dr. J. W. Mitchell searched through the various plant parts in 1950 and found that the very young embryos of the bean seeds contained a potent compound that caused plants to elongate as though they were treated with gibberellic acid. During the past year or so workers in California have found similar materials in embryos of wide varieties of plants. These plant extracts are called "gibberellin-like" substances and are apparently produced by most plants. As yet, there is no positive proof that they are chemically identical with the gibberellins, although they bring about very similar growth responses when applied in minute amounts.

Treated Plants Heavier

A number of workers have reported that gibberellic acid-treated plants are heavier both in fresh and dry weight than the untreated plants. Over-treatment, however, generally results in moderate to severe reduction in plant constituents even though the treated plants may be much taller.

In the process of screening for new growth regulating compounds at the Plant Industry Station, Beltsville, Maryland, a number of chemicals caused the test plant to become short and intensely green in color. Although this response was reported in 1949, it did not create much scientific interest. With the advent of gibberellic acid and its elongating effects, considerable interest has been shown in the shortening compounds. One of these synthetic chemicals designated Amo-1618 for short, is particularly effective on some kinds of ornamental plants such as chrysanthemum and salvia. Application of a small amount of the chemical to varieties that ordinarily grow several feet tall and spindly reduce their height to a matter of inches. Although the Amo-1618 treated plants generally come into flower a few days later than the untreated plants, they remain alive and attractive in appearance for several weeks longer.—*End*

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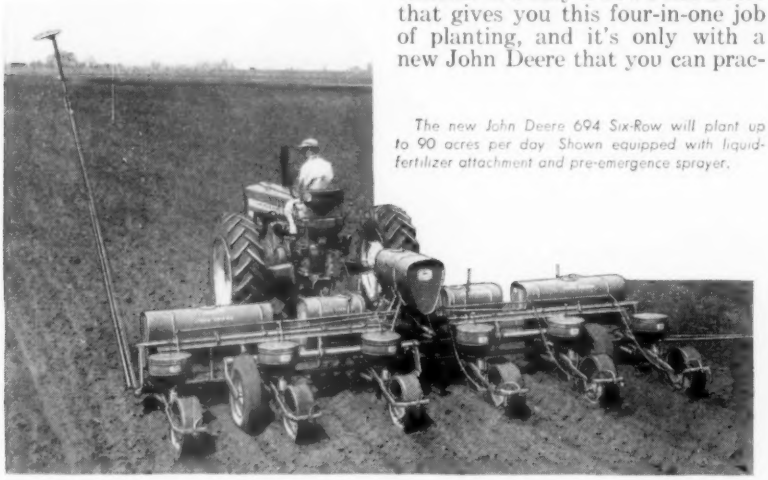

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"WHEREVER CROPS GROW, THERE'S A GROWING DEMAND FOR JOHN DEERE FARM EQUIPMENT"

BEFORE—This pond, infested with lily pads, is being treated with 2,4-D by County Agent O. C. Helms of Clarke County, Ala. The picture on the adjacent page shows Helms looking at the same pond a few weeks later.

"Use those fish ponds for more than a fishing place"

By Earl F. Kennamer

● "WE'RE getting daily calls from pond owners on weed control problems. We simply can't answer all questions, and visiting each pond is impossible. What can we do to handle the situation?"

I was on the phone listening to the cry of distress from one of my county agents.

"Listen, George," I said. "I'm due for your county next month. The weather's warming up fine, so let's put on a wingding fish pond school with all the trimmings."

"I'm all ears!" came over the wire.

"Talk with a pond owner who has a pond jungle of underwater weeds and who will go ahead with our recommendations. Get him to order the sodium arsenite we'll need. If he has some cattails along the shoreline, we'll also use some 2,4-D. To keep us both straight, George, I'll send you a letter today outlining a program."

George and I worked on the coming project as a team, although we were miles apart. He had no problem selecting a farmer with a weed infested pond and with a will to cooperate fully with us. George mailed circular letters to all pond owners announcing the fish pond school we would conduct upon my arrival. He plugged the coming event in his column and over the radio.

At the school held at the nearby community

clubhouse, I presented my colored slide series on fish pond management and followed it with a blackboard summary to the 65 persons present.

"Now," I said, "We're going to actually go over to Mr. Jackson's pond and set up weed control demonstrations. I want you to see actually what we do and we'll clear up all questions before you leave. But—I held up my hand for emphasis. "This won't be the end of the demonstration. I want you to drive over four or five weeks later to see the results. Then you can make up your own mind as to whether you can control weeds in your own pond."

We applied sodium arsenite to the upper half of the *najas* infested pond with a drum applicator and sprayed cattails with three different formulae of 2,4-D.

Afterwards when the "students" had left, I turned to George. "This demonstration will produce more results than all the talking you and I could ever do."

He agreed enthusiastically. "Why, half the folks here were shaking their heads over the idea that the few gallons of sodium arsenite we dripped over the weeds would kill them!"

Did the demonstration work? Four weeks later the underwater weeds had almost disappeared in the treated portion of the pond. The rotting clumps of floating vegetation were sufficient proof of the arsenite effects.

Here are ideas for fish pond demonstrations in your own county:

WEED CONTROL: Use sodium arsenite for controlling underwater weeds, but be sure to emphasize precautions with this deadly chemical. Apply bluestone for control of dark green slimy floating algae; sodium arsenite or Delrad for floating non-slimy algae in summer. Try different strengths and solutions of 2,4-D on above-water weeds, such as cattails and lilies. I usually spray one section with 2 cups 2,4-D ester, 5 gallons water, and 1 cup washing detergent and another with 2 cups 2,4-D with 5 gallons kerosene. Good tip: Best control of cattails is obtained by treatment in spring before new "catheads" appear! Amino triazole is also effective on some above-water weeds. You can also sterilize weedy shorelines with Chlorea in the fall to prevent regrowth the following spring. Black plastic sheeting is a promising possibility for underwater weed control in small ponds and shoreline weed control in large ponds.

MUDDY WATER CONTROL: Use gypsum (calcium sulfate) to clear pond water muddy because of colloidal clay from natural clay soils in pond basins. You can also demonstrate startling results with gypsum with fruit jars, both containing water with clay particles in suspension; but in one, stir a couple tablespoons gypsum and display results later.

POND WATER EVAPORATION: Show how fatty alcohols can save 50 to 70 percent of water evaporation loss annually. Use two clean-glass battery jars with clear water filled to same depth exactly. Sprinkle a pinch of the dry powder over the surface of the water in one jar and display demonstration jars two to three months later.

POND BALANCE: Absence of tiny newly hatched bass and bluegills in spring and summer indicate unbalanced fish populations. Dip small mesh minnow seines along shorelines of different ponds to show variation in fish reproduction in ponds with good and poor fishing.

Actually there is no end to the number of effective demonstrations—a newly constructed pond with edges 2-3 feet deep to show value in weed control; fertilization of water to produce dark green or brown color of stimulated plankton (fish food growth); soil filled tubs with perforated bottoms and with varying amounts of bentonite to prove water seepage control. A tip: make color slides and black and white photos of "before" and "after" demonstrations for later use.

Remember that a bulletin is simply a recipe. The demonstration is proof of the pudding!—*End*

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Flies pester us all— Are they here to stay?

● IN EARLIEST SPRING before any flies are seen, the simplest and most lasting fly control should be practiced. This consists of a thorough and complete clean-up of fly breeding areas.

Manure and wet decaying straw or hay refuse should be spread on fields. Box stalls, maternity pens, loafing barns and other places where manure is allowed to accumulate should be cleaned and drainage provided so that they remain as dry as possible through the summer. During the fly season, manure should be removed from the barn and spread on fields as often as possible. Box stalls and similar areas should be cleaned at least every two weeks and preferably once a week.

Fly control by removing breeding places depends on the completeness of the job. Even with the best sanitation, additional methods of fly control must be practiced.

TODAY, THE BEST RESULTS can be achieved by use of a good residual spray. Diazinon, a phosphate insecticide, can be applied as a wettable powder or as an emulsion concentrate diluted to the desired strength with water. A .5 per cent concentration is usually recommended. This can be obtained by using 16 pounds of 25 per cent wettable powder or two gallons of 25 per cent emulsifiable solution in 100 gallons of water.

In making the treatment, all walls, ceilings, and other surfaces should be wet with the spray to the point of run-off. Before spraying feed, the feed troughs and water cups should be covered with canvas or burlap sacks and animals should be removed from the barn.

All manufacturer's directions and all precautions on the label should be carefully followed. Do not breathe dust or spray mist. Avoid contact with skin and eyes. Wash thoroughly after handling and avoid contamination of feed or foodstuffs. Do not spray animals or contaminate their drinking water. Animals should be removed from buildings before spray operations and kept out for at least four hours. Do not use in dwellings or milk houses and do not use in poultry houses except for control of fly maggots in manure piles where poultry is on wire and cannot come in contact with the Diazinon.

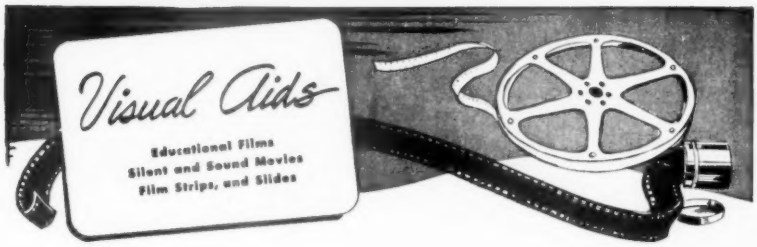
Diazinon in tests in many areas has given 6 to 8 weeks of fly control and often is effective for much longer periods. A spray containing 1 per cent *Diazinon will give a longer residual and may last for an entire season if good sanitation is practiced.* However, it is doubtful that the added cost of the higher dose is worthwhile. Two applications of .5 percent Diazinon seem preferable in most cases.

MALATHION IS ANOTHER approved fly-killer, but will not last as long as Diazinon. Where there is no problem of fly resistance to the chlorinated hydrocarbon insecticides, methoxychlor or lindane residual sprays will also give excellent results.

Several years of tests in New Jersey have shown the advisability of spraying barns with residual sprays early in the season. Applications made in mid-May when flies were first appearing in numbers have outlasted applications made in mid-June by two to three weeks. Probably even earlier spray applications would have given even better results. In some instances, fly control has resulted until mid-June or early July from Diazinon applied the previous year in late August or early September. Undoubtedly only a small portion of the Diazinon residue remained in the spring, but it was sufficient to kill the early season flies and greatly delay extensive fly breeding.

OTHER METHODS OF FLY CONTROL can be used in addition to residual sprays. Space sprays and baits have usefulness throughout the season. They, too, can be used early in the season and will be most valuable when applied on warm days when flies are moving. A little care in applying baits early in the season will give excellent results. The baits should be applied on the warm sunny areas where flies tend to congregate. Application of baits to the areas where flies are most numerous is important at all times, but especially so in early spring and late fall.

There are many brands of baits on the market, most of them containing Diazinon, malathion, or Bayer L13/59 as the toxicant. Baits are useful but must be applied frequently and with discretion for best results, and cannot be expected to give as complete control as a good residual spray.—*End*



THE SHEEP THAT COUNT, 16 mm., sound, color, 30 minutes. Available from the Farm and Home Div., American Cyanamid Co., 30 Rockefeller Plaza, New York 20, N. Y.

This new documentary film outlines recent advances in the care and feeding of sheep, and stresses techniques for reducing losses from disease. This 16 mm. film is narrated by CBS news commentator Walter Cronkite, and contains summaries of recent experimental work.

The new film devotes considerable time to such comparatively recent developments as creep feeding and the use of pelletized rations. In order to give you a better understanding of the problems facing producers in different parts of the country, prominent sheepmen in California, Colorado, New Mexico, Illinois and Kentucky appear in the picture to explain how such variables as climate and available pasture affect their operations.

Yipes, an error!

We listed the film "Old MacDonald" from the American Feed Manufacturer's Association, Inc. with the wrong address in our September issue. Please send requests for this film either to the Modern Talking Picture Service, Inc., 3 East 54th St., New York City, N. Y., or Farm Film Foundation, 1731 Eye St., N. W., Washington 6, D. C.

STEEL BUILDINGS FOR BETTER FARMING, sound, color, 28 minutes. Available from Film Distribution Center, United States Steel, 525 William Penn Place, Pittsburgh 30, Pa.

This informative motion picture is designed to show the farmer how he can use prefabricated steel farm buildings for more efficient farm storage and housing needs. It shows how farmers everywhere are taking advantage of the practicability of steel buildings.

This new film depicts the type of steel barns that have been developed, in collaboration with the several steel building manufacturers, to serve all farm needs. This is not only a story of the importance of steel buildings in protecting hard-earned grains and crops and expensive farm machinery, but a story that will stimulate new ideas and make a significant contribution toward improvement of agriculture.

BUILT FOR LIVING, color or black and white, sound, 26 minutes. Available from the Southern Pine Association, P. O. Box 1170, New Orleans 4, La.

"Built for Living," a new motion picture produced by the Southern Pine Association, takes a young couple through the various steps of home planning, and in the process, reveals the important things to look for in a new home.

By relating one family's experiences, the film describes the respective roles of the architect, the contractor, and the lumber dealer; tells of the best values for the building dollar, and warns of the risks involved in shoddy workmanship and inferior materials.

EGG LAYERS—FROM JUNGLE FOWL TO HYLINE, 16 mm., sound, color. Available from Farm Film Foundation, 1731 Eye St., Washington 6, D. C.

This film of the history of the chicken carries the viewer through the many stages of this bird's development. It contains sequences on cock fighters, exhibition of fancy poultry, production breeding, scientifically bred layers, and mass producing chickens. This fast-moving film would be of particular interest for those poultry meetings.

KORDIMULCH: THE PLASTIC GARDENER, color, sound. Available from the Kordite Company, Macedon, N. Y.

This new movie shows beautiful blooms in full color, gives professional landscaping hints, and explains new techniques for making your garden grow—with plastic.

The Kordite Company invites you to use this film free for showing to garden clubs and other groups interested in beautifying the outside of their home. The film demonstrates, with actual garden locations, how a new year-round black plastic mulch can be used to kill weeds, to encourage growth, and to cut down watering requirements.

Among the flowers shown are asters, azaleas, cineraria, viola tricolor, roses, and cyclamen. Also shown are many foundation shrubs and how to care for them with mulch. The film shows gardeners how to increase the size, strength and beauty of their flowers.

NASCO news
TIPS FOR BETTER TEACHING

Train Judging Teams Now

Winter is a good time to concentrate on training judging teams for spring contests. Many teachers have found that a member of last year's team can be very helpful to train the beginners. Much of the training can be done outside of regular class time with the help of older students and ready-made teaching aids. Grain grades on page 58 and weed specimens on page 69 of catalog No. 41 will enable students to go a long way by themselves.

Be Sure to Watch the Ventilation

Projected visual aids such as filmstrips, slides and motion pictures are most effective when shown in a well darkened room. Sometimes, however, in the effort to do a good job of darkening, there is a tendency to forget about ventilation.

The shades shown on page 30, for example, will darken a room well, but should be mounted a little distance out from the window to allow some circulation of air. This darkening material rolls up easily, so is well adapted to carrying in a car for use in town halls and out-of-the-way meeting rooms.

Use A Flannelgraph to Develop Your Message

The chief advantage of a flannelgraph over a chart or blackboard is that you can develop your story point by point. Your audience is not exposed to the whole message at one time. Each point in the talk or lesson can be on a card with flocked or sandpapered backing. It is ready to use when you need it. Flocked material called "Flok-tite" is listed on page 45 and ready-made flannel boards are on pages 44 and 45. Be sure that the board is well lighted. Inside silvered flood lamps of 150 watts are good, or you can use a 2 x 2 slide projector of low to medium wattage.

Always Carry A Spare Projection Lamp

It's just as important to have a spare lamp as it is to have a spare tire for your car. On page 35 you'll find projection lamps to fit any slide or motion picture projector. Examine the lamp in your projector after ten hours of use to see if it has darkened appreciably or begun to enlarge. If there is serious darkening or if any enlargement is noticed, better put in a new lamp before you have trouble. An old lamp left in the machine too long will swell up and may have to be removed with a hammer and chisel.

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Helpful BOOKLETS

91—Feed Additives

To supplement your information on the ever-growing feed additive field, you'll want to order a booklet from the American Cyanamid Company about their antibiotic Aureomycin. This descriptive booklet will help you in your work.

On the postal card
CIRCLE 91

92—Conservation Facts

Facts about the watershed program of the Soil Conservation Service are contained in a new booklet entitled "Blueprint for Opportunity Unlimited." Order your copy from the International Harvester Company.

On the postal card
CIRCLE 92

93—The Thram Story

A booklet designed to supply technical data to county agents, vo-ag teachers, and other ag workers on Thram has been compiled by the S. B. Penick Company. You'll find this story interesting. Order your copy today.

On the postal card
CIRCLE 93

94—Milking Machines

A 12-page booklet just published by the Crown Dairy Supply Company tells how to get the most service from your milking machine rubber. Send for your free copy.

On the postal card
CIRCLE 94

95—Liquid Feeds

A new concept in quality livestock nutrition is discussed in a booklet about Morea from the Industrial Chemicals Company. Ag leaders are invited to get a free copy of this booklet.

On the postal card
CIRCLE 95

96—Feed Charts

Charts that allow you to quickly compute the grain requirement for high-producing cows as related to the cash value of roughages, is available from the Beacon Milling Company. Order today.

On the postal card
CIRCLE 96

97—The Dynafac Story

A very colorful booklet available from Armour and Company tells the success story of a new feed additive—Dynafac. This well-illustrated booklet is yours for the asking.

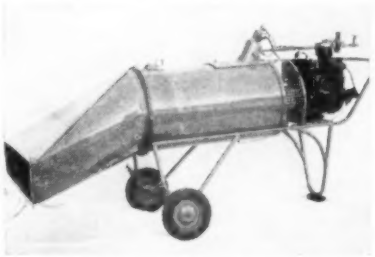
On the postal card
CIRCLE 97

98—Holstein Handbook

The Holstein-Friesian Association of America has just published a new reference guide of its programs of breed improvement and promotion. Your copy of this concise 20-page listing of Holstein activities is available by circling the postal card number below.

On the postal card
CIRCLE 98

99—Portable Furnace



A new LP gas-burning portable furnace is being introduced by the Agricultural Equipment Corporation. Get further details on this equipment by circling the postal card number below.

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CIRCLE 99

100—Fertilizer Placement

An important subject to modern farmers—fertilizer placement—is the topic of a new 40-page booklet by the American Potash Institute. For a free copy, circle the postal card number below.

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CIRCLE 100

101—Hygromix Fact Book

That's the title of a new booklet of the Eli Lilly Company telling about a new effective way to control worm parasites in swine. For more information about their product, send for your copy of this helpful booklet.

On the postal card
CIRCLE 101

102—Live-Saving Products

Two new bulletins, one on nf-180 tablets, another on Nitrofurazone soluble, have been prepared by Hess & Clark, Inc. Send for your bulletin that gives detailed information on how to use and recommend life-saving Nitrofuran products.

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CIRCLE 102

103—New FarmTool

This new electric FarmTool built by the Thor Power Tool Company may be used as an impact wrench, drill, screwdriver, auger, wire brush, sander, or hole saw by attaching various accessories. You can get further details about this piece of equipment by circling the postal card number below.

On the postal card
CIRCLE 103

104—Protects Grain

The Dow Chemical Company invites ag leaders to send for a copy of their leaflet, "Grain Sanitation." Order your copy today.

On the postal card
CIRCLE 104

(Cont'd on page 44)

(Echoes—Cont'd from page 14)

Likes Annual Directory . . .

Dear Frank:

"You are to be congratulated on the fine manner in handling the 1957 Annual Directory issue and the quantity of material included therein.

"Agriculture teachers appreciate having this information available as it is often necessary to contact fellows in other communities where a contact needs to be made. This not only is true with vocational agriculture, but also county agents.

"With best regards for the coming year and will look forward to meeting you again in Buffalo."—*Robert J. Bishopp, Powell, Wyo.*

What's a Slug . . .

Gentlemen:

"Probably by now there have been several people question your listing of a slug as an insect in the October 7, 1957 issue of your publication, 'Better Farming Methods.' Of course it is not an insect, so I will presume you will clarify this for any of the readers who may accept this as 'gospel fact.'

"I think your idea of getting readers acquainted with insects and their damage is very good, because insect control has become an integral part of farming, even though many farmers do not recognize this."—*E. H. Fisher, University of Wisconsin, Madison.*

Reader Fisher is absolutely right. The slug is not an insect. The slugs are terrestrial pulmonate gastropods, not now regarded as a natural group, but are considered to have descended from shelled snails of several different families. —Editor

Correction, Please . . .

Dear Mr. Waddle:

"In the November issue of your magazine, Better Farming Methods for 1957, you have listed agricultural education personnel beginning on page 45 of section 2.

"On page 46, you have listed Cecil E. Stanley as Director of Vocational Education for the state of Montana. I know that this is an editorial error, but it has caused several pieces of mail to be addressed to Cecil E. Stanley. Some of the mail is for me and some of the mail should have gone to Mr. Stanley, State Director at Lincoln, Nebr.

"Would it be possible for you to correct this error in the next issue of Better Farming Methods."—*A. W. Johnson, state director, Vocational Education Service, Helena, Mont.*

Our apologies, Mr. Johnson, for giving your job to Cecil E. Stanley in our November directory listings. Readers, address correspondence to the state director of vocational education for Montana to: A. W. Johnson, Helena.—Editor

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Send your card today for the Helpful Booklets listed in this issue. Circle the numbers on the card for the booklets you want.

105—Agricultural Chemicals

A complete listing of agricultural chemicals and their uses is included in a catalog available from Niagara Chemical Division. This leaflet includes descriptions and pictures of common insects. Order a copy for your files.

On the postal card
CIRCLE 105

106—Spittlebug Control

Complete information on the control of spittlebugs is included in a leaflet available to ag leaders from the Velsicol Chemical Corporation. Get your free copy.

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CIRCLE 106

107—Disease Control

Your copy of "Antibiotic Control of Plant Disease with Agri-Strep" is available from Merck & Company. Get your copy by circling the postal card number below.

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CIRCLE 107

108—Alfalfa Poster

A colorful new poster from the Certified Alfalfa Seed Council tells the key facts about certified alfalfa's great benefits to farmers. This 20 x 28-inch poster will make an attractive display for your bulletin board.

On the postal card
CIRCLE 108

109—Mastitis Control

The Babson Bros. Company has a new leaflet for ag leaders, "Want to Do Something About Mastitis?" Get your copy of this helpful booklet.

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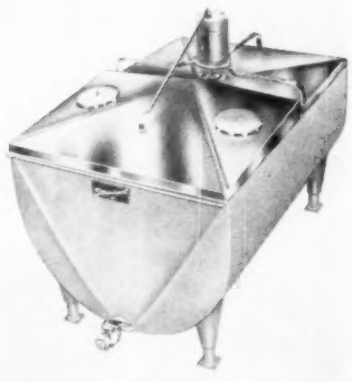
CIRCLE 109

111—New Bulk Tank



This Steinhorst bulk tank was recently named "Economizer" because of its quality features. For more information about this milk cooler circle the postal card number below.

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CIRCLE 111

112—New Grasses

A booklet from the New Holland Machine Company tells how plant wizards are pulling new grasses out of the lab. You may have a copy free by circling the postal card number below.

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CIRCLE 112

113—Feed Supplements

The Commercial Solvents Corporation invites you to send for a copy of their booklet, "High Level Feeding at Low Cost with Baciferm, Zinc Bacitracin Antibiotic Supplements."

On the postal card
CIRCLE 113

114—Bulk Cooler

A leaflet from the Dairy Equipment Company tells how to select the right bulk milk cooler. Order this valuable booklet today.

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CIRCLE 114

115—How Much Salt?

According to a booklet available from the International Salt Company, cows need more salt. For more information on this topic, circle the postal card number below.

On the postal card
CIRCLE 115

116—What Size Grit?

A helpful booklet "Watch the Grit Size" from the Stone Mountain Grit Company tells about feeding the proper size grit to your poultry. Order your copy today.

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CIRCLE 116

117—Fertilizer Booklet

The Tennessee Corporation would be happy to send you their booklet "Tri-Basic Copper Sulfate" if you'll indicate your interest by circling the postal card number below.

On the postal card
CIRCLE 117

118—Farm Sprayer

Like to know how one farm sprayer can do all your spraying jobs? Find out by ordering a booklet on this subject from the Hanson Equipment Company.

On the postal card
CIRCLE 118

119—Fire Pump

Complete information on Indian fire pumps for the home and grounds is available to you from the D. B. Smith & Company. Order your copy of their booklet, "No. F98 Indian Fire Pump" by circling the postal card number below.

On the postal card
CIRCLE 119

120—Pond Pest Control

A 32-page booklet available from the Phelps Dodge Refining Corp. tells how to control plant and animal pests in farm ponds with copper sulphate. Ag leaders are invited to send for a free copy of this helpful booklet. Order yours.

On the postal card
CIRCLE 120

122—Chain Saws

Information on chain saws for farm and woodlot is available to you from the Homelite Company. Send for your free copy.

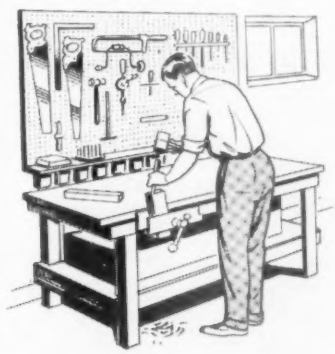
On the postal card
CIRCLE 122

123—Projection Screen

The Da-Lite Screen Company invites you to send for complete information on their screens for slides and movies. Order this helpful information today.

On the postal card
CIRCLE 123

124—Work Bench—Tool Rack



This sturdy farm work bench and tool rack can be built easily in a day. For more information on this work bench from the Masonite Corporation, circle the postal card number below.

On the postal card
CIRCLE 124

125—Modern Seed Treatment

"The Benefits of a Modern Seed Treatment" is the title of a colorful booklet from Panogen, Inc. Here is the latest on seed treatment and its value in agriculture. Send for it.

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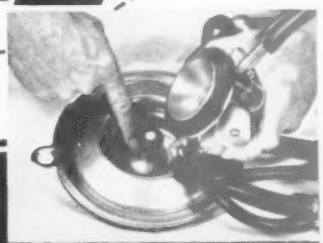
CIRCLE 125

What is so important about the

SANITATION FEATURES IN Universal MILKERS?



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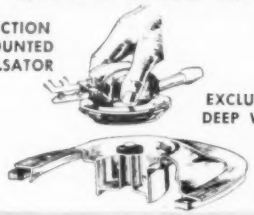

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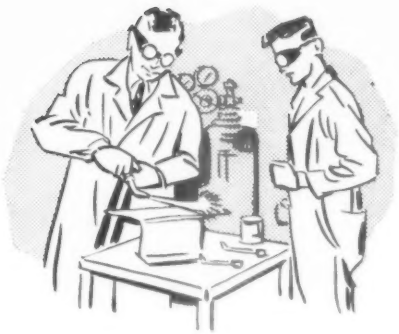


By T. J. Wakeman

Virginia Polytechnic Institute
Blacksburg, Va.

● EACH DAY BRINGS to us more opportunities to be of greater service to our students. Arc welding offers us one of these opportunities. This is an old art but not until recently has the equipment and electric service been available to the average farmer. Now, many students come from farms where arc welders are common equipment. We, the ag teachers, are the only group in a position to teach welding to farm youth.

Why should we teach welding?

To teach our students to maintain and repair our farm equipment and construct unspecialized farm projects needed on the farm. While this is being done, the student's abilities will be developed making him a more self-reliant and more valuable asset to mankind.

When should we start teaching welding?

Start as soon as you get the student into an organized group. With limited facilities in many of our schools, welders should never stand idle. Experience has proven that high school freshmen are as interested and capable as older students. Why wait until they are sophomores? All able-bodied students are capable of doing a good welding job if they are given an opportunity.

How many welders are needed?

Four are needed in most classes of 16 students. Two of the welders should be used for the carbon arc torch and two for arc welding. However, if you have only one, use it to the nth degree to get as much teaching done as possible.

As you know, the number of jobs that can be done on the welder is increasing constantly.

Effective welding calls for a lot of practice and practice material. The material should be the same type that will be used in the project. For example: Use rusty pipe in the exercise to make a farm gate if rusty pipe is going to be used in making the gate.

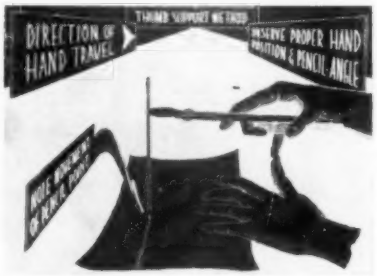


FIGURE 1—This classroom procedure is being used successfully in teaching welding. It encourages fast learning and increases quality of work, especially uniformity and width of beads. The welding gloves are removed from the hands.

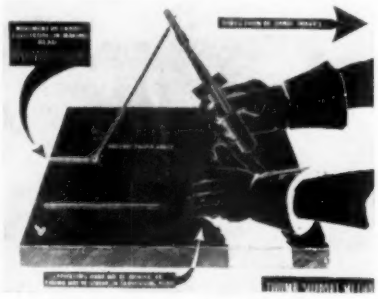


FIGURE 2—Note how the left hand can be rolled to lengthen the reach of the welder.

How to teach arc welding

- First, it is absolutely necessary to establish in the minds of the students that good welding is easy if these basic principles are followed:

That arc welding is safe if standard safety practices are followed.

That any of the standard practices of manipulating the electrodes will produce good results.

That one method should be chosen and stuck with.

That practice is imperative for good workmanship. The student should see where the practice exercise leads to useful projects, like the farm gates.

That a large portion of arc welding is first learned in the classroom.

That the student will soon "find himself" in welding, and he can find ways and means of improving his welding by thoughtful analysis of his efforts.

- Have students evaluate good workmanship found in exercises and on projects before starting to weld.
- Provide adequate practice material for each weld before applying the weld to a project.
- Provide adequate simple welding references.
- Provide simple exercises that are used later. Here are some suggestions for the first two exercises always using a rest:

Use the pencil in a pair of pliers to gain some of the movements needed in welding.

Lean the pencil about 15 degrees from the vertical in the direction of travel as shown in Figure 1.

Weave bead the width you intend to make when welding. Progress forward about one-eighth of an inch on each stroke of the weave.

Teach the students how to strike an arc and practice until proficient.

Have students practice on a strip of metal about ¼″ x ½″ x 12″ and observe results. Clean each bead after welding. It may be advisable to make three or four beads about 2½″ apart so that all can be cleaned at once with a wire brush.

Make a pad of three or more layers using a ¼″ x 4″ x 4″ piece of metal. Cover the ¼″ x 4″ x 4″ metal with beads. That gives 16 square inches of surface; then welding in opposite direction, cover all except ½″, making another 14 square inches of surface covered. Now weld beads to within ½″ of the last weld (in op-

posite direction). Now weld another layer making 12 square inches of weld, making a total of 42 square inches. This is an educational and economical exercise. Be certain to provide motorized metal brushes.

What equipment is needed?

In addition to the regular equipment, have outside calipers and a metal rule stabilized with sash chain to the side of the welding booth. This provides a way to measure the metal to determine amperage and size of electrodes. It is suggested that the student use 6011 rod the first hour then 6013 electrodes thereafter.

Resting the arm and supporting the welding hand removes much of the uncertainty on the part of the student. It is more economical to use paper to start the student. Wherever there is an irregularity in the practice exercise, it will show up in the weld. These practice sheets can be mimeographed on regular 8½" x 11" paper. They should be graded.

Using the above techniques or other comparable techniques along with the material found in tests, most any student should learn to weld quickly and do a good job.

Do Vo-Ag graduates stay on the farm?

● WHAT happens to vo-ag students after graduation?

This question is answered by the Rosepine, La., vo-ag department with an annual survey of former students. Their checks indicate their students are scattered around the globe.

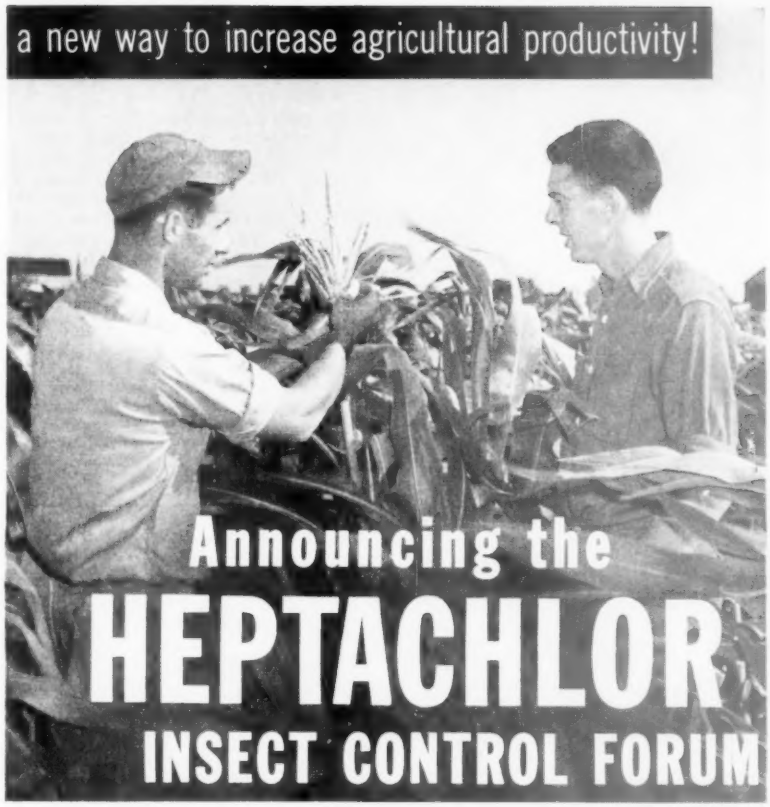
Of the 235 boys that have graduated from Rosepine ag classes during the past 20 years, only 28 are currently in the field of agriculture. Three are full-time farmers and 18 are either part-time farmers or working in fields relating to agriculture.

Thirty-four of the former students are working within 60 miles of the Rosepine school.

Fourteen of the boys finished college and two received master's degrees. Both of them are teaching vocational agriculture. The 14 that finished college graduated in the following fields: 6 in agriculture, 6 in the arts and sciences, and 2 in the field of medicine. Seven Rosepine graduates are still in college.

It is interesting to note that 31 of the former Rosepine students are in the armed services and most of these are making the service a career.

a new way to increase agricultural productivity!



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- **NEWSLETTER CONTAINING INSECT CONTROL HIGHLIGHTS OF THE MONTH** . . . Your participation will also include the personal assistance of Velsicol entomologists on local insect control problems!

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Tree Talk

by *Will Rusch*

"What kind of trees should I plant for a new timber stand?"

That's one of the most frequent questions I'm asked – and, oddly enough, one of the toughest to answer. The reason is that selection of the right types of trees is almost always a local matter.

Two good guides to follow, though, are (1) plant only those species which are most common to the region; and (2) plant only those species which have the highest dollar value, either on the market or for home use.

In more specific terms this means: Grow white pine in the southern highlands; slash pine on the coastal plains; loblolly in the Piedmont and coastal plains; yellow poplar, white oak, ash and black locust on good upland sites in the Midwest; and black walnut in the bottomlands. When in doubt, it's a good idea to check with the State Extension Forester in your state.

With the prices of most things being what they are today, you just can't blame a fella for wanting to pick up a little extra cash. Dairy farmer John Sandahl of Stephenson, Mich., for example, made $750 in just 30 days a while back cutting timber in his spare time.

Mr. Sandahl's farm covers 320 acres, 85 of them under cultivation and some in pasture. About 120 acres are timbered with pine, cedar and poplar. Says Mr. Sandahl, "At my age (55), on a dairy farm with not too much time between chores, I wouldn't be making any extra money without a lightweight chain saw like my McCulloch. It's one of the best investments I ever made."

Depending on your specific needs, there's a McCulloch saw for just about every type of cutting job. Take the two direct-drive saws, for example, the all-new Super 44 and the popular D-44. Both are extremely lightweight, fast-cutting saws—well suited for general farm use.

The Super 44 packs a full 6.5 hp, yet weighs only 19 lb. Where high production cutting is desired, you just can't beat it in a direct-drive saw. The D-44 is light, easy to handle and fast-cutting, too. It puts out a little less horsepower, but it sells for less than the Super 44 and is a real value. I suggest you test them both, then pick the one that suits you best. You'll find them – and many other models, too – at your nearest McCulloch dealer. Best of all, McCulloch prices start as low as $165!

FLASH! – I've just received a limited supply of handy, pocket-size slide charts for calculating the cubic content of pulpwood loads. A regular $1.25 value, these Load Calculators will be given away absolutely free to the first 1,000 persons who write in. Just send your request to Will Rusch, McCulloch Tree Topics Bureau, 6101 W. Century Blvd., Los Angeles 45, California.

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IDEAS that WORK

Tells pruning value

The value of pruning pine trees is easily demonstrated with two pieces of board—one with a loose knot and the other with a tight knot. These may be carried around in the back of your car so they'll be handy for showing the woodlot owner. The tight-knotted board shows the value of saw timber that has been properly managed. —J. C. Culler, Box 6, Newberry, S. C.

Do you have an idea that works? Better Farming Methods will pay a minimum of $5 for accepted ideas or teaching techniques that you have used successfully in YOUR work with FFA, 4-H or farmers.

Research for the future

● SEVERAL studies carried out by the Agricultural Research Service point up the desirability of higher crop yields, high production per animal, high investment, greater cash outlay and increased output from the individual farmer's point of view if his goal is maximum profits.

But what happens if farmers in each area follow present research recommendations to reach this goal? Output will increase and when market demand is expanded less rapidly than output, prices will fall, unless they are paid by price supports and then the government acquires the surplus.

Have leaders in the agricultural field pushed the goal of maximum profits too much while disregarding other goals? Sherman E. Johnston of the Agricultural Research Service, at a recent extension seminar, said that some specialists have pushed maximum production without analyzing its effect on net farm income. Research, he said, has been geared largely to the same objectives. If research and extension workers would concentrate more on individual, rather than group interests, in production and farm income, perhaps many of the needed changes could be brought about voluntarily.

Johnston told the group that a better framework of research information as to what would constitute balanced production in the years ahead in view of market prospects would help them in their work. Then extension workers could proceed with more confidence in helping farm people achieve their goals, but in the meantime, he said, their obligation is to do the best they can with the tools that are available.—*End*

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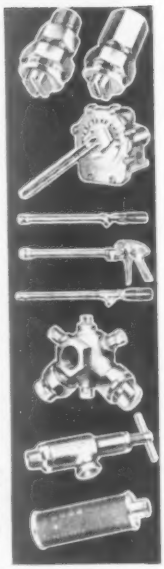

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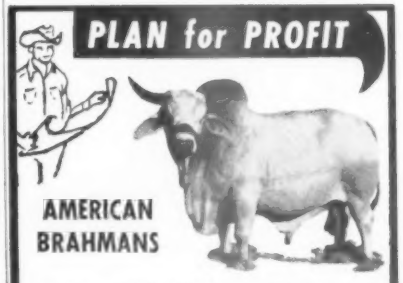

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How Erosion Gets the Soil

Here is an easy and effective way of showing the effects of rain drop erosion on the soil:

Take an ordinary tin can and solder a petcock to the lower edge. Then make a stand to suspend the can about three or four feet in the air. A tripod makes a good holder for the can.

Other equipment needed for this demonstration is two fish bowls. Fill each of these half full of soil. Now, leave the soil in one bowl bare and cover the other with fine straw or other mulch material.

Now you're ready for the demonstration. Place the tin can (filled with water) over the fish bowl with unprotected soil and open the petcock slightly, just letting the water drip into the fish bowl. The audience will notice that water splashing against the sides of the bowl leaves a deposit of soil.

Now, move the other bowl under the dripping water. This time there is no soil left on the sides of the container, even though some water may splash against it.

These easy-to-make visuals will help your students remember the value of ground cover for preventing erosion. *—Leonard J. DeBoer, Vo-ag Instructor, Chamberlain, South Dakota.*

Past F.F.A. Officer Roll

Does your FFA Chapter keep a record of past officers? Richard Mills, Vo-Ag instructor at Tecumseh, Nebraska, reports that a roll of past officers has boosted his FFA program. They found many old friends giving them added support when they started looking for past officers' names to add to their roll. The past officer roll is kept on display where it is noticed by students and visitors.

"Alvin, that is not how we girdle a hardwood tree!"

When someday a farm program is adopted that everyone likes...

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Might be a long time coming. But when it does, your Butler building will still be there with years of low-cost service ahead. Folks who really take pride in their farms look for this kind of enduring value. They buy for the future, and they buy a Butler. These attractive, all-bolted metal buildings are a credit to their good taste and judgment. Straight sidewalls and clear-span interiors provide more room. Wide doors let you get machinery in and out with ease. A Butler is fire-safe, vermin-proof, defies wind or snow load—and never loses its farm usefulness. Be wise, see your Butler Builder. Ask him for "New Uses For Farm Buildings," or mail coupon below.

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For What It's Worth

By FRANK WADDLE, Editor

Ag Leaders Here to Stay

What effect will an integrated agriculture — contract farming —have upon the ag leader?

This is a question that has come up during many recent gatherings of agricultural workers. This topic was often discussed by vo-ag teachers at their last annual convention.

But the discussion of this question was even more evident among county agents when they got together in Boston a couple of months ago. Many of their between-session discussions included speculations about the ag leader's role in an integrated agriculture.

And it appears fairly certain, at least in the minds of many outstanding agricultural leaders, that we are definitely headed for an integrated agriculture. They see this trend especially eminent in the field of animal agriculture.

Already the third largest farm cash income producer—poultry —has become a highly integrated operation. And it appears that hogs may follow this trend. A milling company recently reported that it is looking for 100 hog producers who will each grow out 500 hogs annually on contract.

Cattle, too, may come nearer to the contract farming concept before too many years. Presently, many large feeding yards are tying in with cattle ranches and range operations for greater efficiency.

These broad changes in the farm picture can only mean change for the ag leader. It will probably mean that he will share some of his work with advisers of commercial feed companies, processors, lending institutions, and others who have a share in the many phases of contract farming.

During one of the county agent bull sessions referred to above, an agent from a highly integrated poultry section said that he was seldom asked for advice by any commercial poultryman. They depend upon their feed suppliers and financiers for their technical information on broiler production.

Should this cause alarm among county agents? Certainly not! But they certainly shouldn't remain unconcerned about the events that may shape their future.

As a matter of fact, maybe this trend toward a seeming loss of authority is arriving at the most opportune time. It could give the county agent time to think about another trend that is shaping up for agricultural workers. That is, sharing more of their talent with the marketing side of farming instead of production.

Even today, research is being quietly conducted to determine just how future extension programs can be acclimated to the complicated marketing structure of our farm economy.

But marketing isn't the only job for the county agent of the future. He will remain a leader of farm people. Can you imagine successful community organizations without the guidance of ag leaders? What about the many hours of behind-the-scenes work that ag leaders do for farm associations and organizations?

And, who is better qualified than the farm agricultural agent to keep the public informed on agricultural problems through his radio program, news column, and circular letter information outlets.

And, even if most animal farmers do become associated with this new type of agriculture —contract farming—who will help the farmer select the concern with which to ally his energies and capabilities?

No, ag leaders shouldn't be scared by the big bad word, commercialization. And if you'll look at the article on page 20 of this magazine, you'll see how a young Mississippi county agent has used commercial companies as a stepping stone to success.

"Look, Sis, they got Ma under the brooder!"

Frank Waddle

ORDER NOW FOR NEXT SEMESTER—

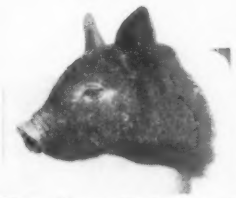
Free Color Film— "High Level Feeds —WHAT THEY ARE—HOW TO USE THEM"

Latest, up-to-the-minute information on the new antibiotic feeds that fight disease

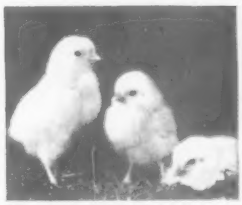
The new High Level antibiotic feeds have moved into the farm picture faster than most texts can keep up with the subject. That's why Vo-Ag teachers have found this film kit a valuable addition to their teaching program. It tells what high level feeds are . . . why they were developed . . . .what *specific* diseases they control and prevent . . . how and when they are properly introduced into the feeding program . . . the economics of high level feeds.

Full-color strip film comes with commentary on record, teacher's lesson plan, student's quiz sheet and master grader. Gives you excellent, up-to-the-minute information on the new high level feeds for your permanent film library.

If you have not yet received the other two filmstrips in the Pfizer Agricultural Film Library—"Control of CRD with Antibiotics" and "How to Judge Livestock," write for them today. They are free.



New film tells how and when to use high level feeds to save pigs from Infectious Scours, Necro; prevent runts and stunting from disease.



Shows how extra antibiotic the first two weeks cuts death loss, holds down disease, gets chicks off to a faster start.

Shows how to use high level feeds in the feeding program to prevent laying slumps from Air Sac Colds; how they help low-producing flocks lay more eggs.

Tells how and when to use feeds with antibiotic at high levels to prevent and control Infectious Diarrhea, Scours, save good calves.

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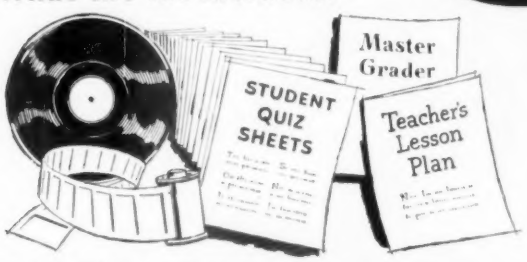

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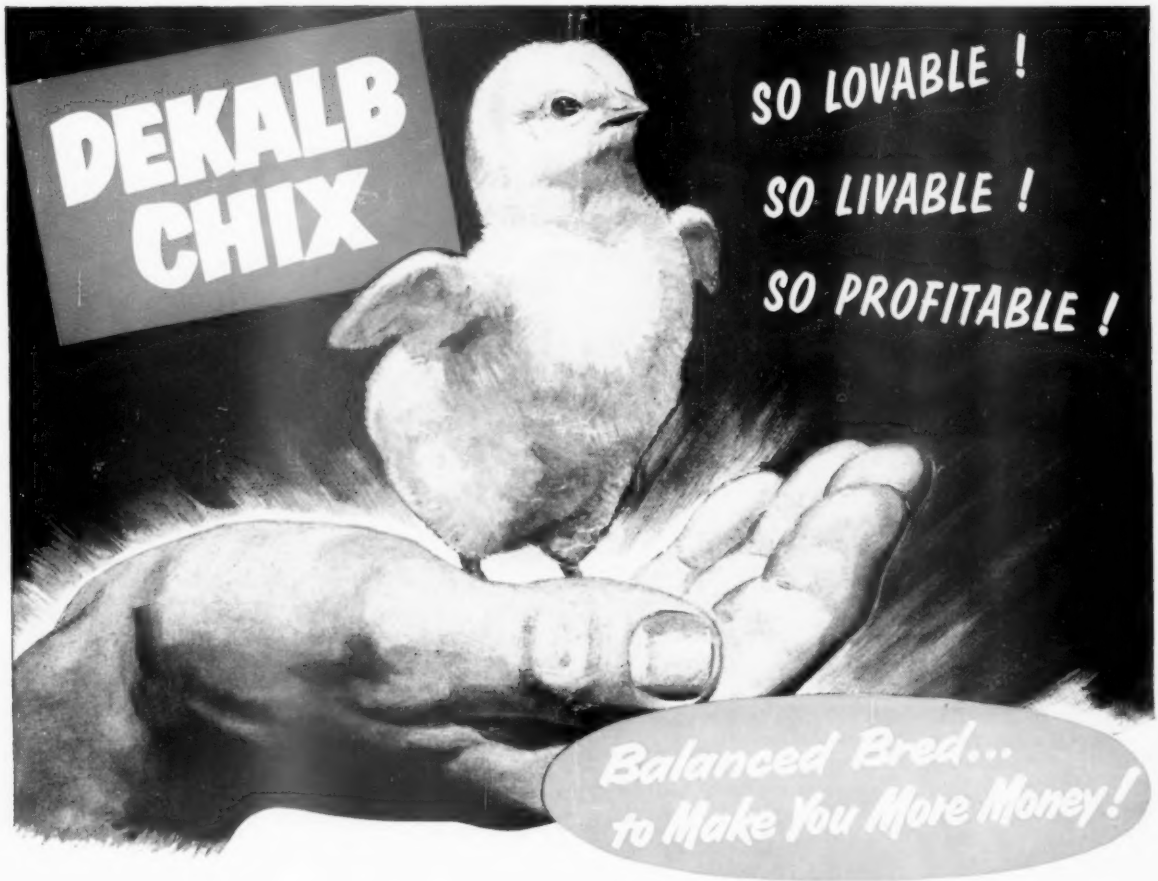

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